FIRE MANAGEMENT PLAN

for

YUKON-CHARLEY RIVERS NATIONAL PRESERVE
Alaska

DRAFT 2-14-00

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I. INTRODUCTION

The following Fire Management Plan (FMP) is a specific action plan for the implementation of agency-wide and park-specific policies. As stated in Director's Order 18 (DO-18), the National Park Service specifies that "Each park with vegetation capable of burning will prepare a fire management plan to guide a fire management program that is responsive to the park's natural and cultural resource objectives and to safety considerations for park visitors, employees, and developed facilities." Accordingly, this plan is intended to facilitate the achievement of the goals and objectives identified in the General Management Plan (GMP) and Resource Management Plan (RMP) for the Yukon-Charley Rivers National Preserve. As stated in the GMP, "Fire is of critical importance in the development and succession of the boreal forest. Consequently, natural fires will be allowed to burn and fulfill their role in vegetative succession to the fullest extent possible, consistent with necessary protection of life, property, and significant cultural resources." Within the Preserve's RMP, Project Statement YUCH N-004.0 mandates the on-going development of a fire program which will "protect human life, property and significant resources while allowing fire to fulfill its role as a dynamic natural process." Since 1983, guidance for fire management activities within the Preserve has come from a series of state-wide interagency plans developed cooperatively by the National Park Service, the Bureau of Land Management, the Alaska Department of Natural Resources, the Alaska Department of Fish and Game, the U.S. Forest Service, the U.S. Fish and Wildlife Service, the Bureau of Indian Affairs, and Native Regional and Village Corporations. This Fire Management Plan, in turn, comprises a park-specific action plan; as such, it will be used in conjunction with the current Alaska Interagency Wildland Fire Management Plan to direct all personnel engaged in fire management actions within the Preserve toward the fulfillment of the goals and objectives specified by the Preserve's RMP.

Authority for the implementation of this Fire Management Plan originates with the Organic Act of the National Park System, August 25, 1916. This Act states that the primary goal of the National Park Service is to preserve and protect the natural and cultural resources found on lands under its management in such a manner as will leave them unimpaired for future generations. Current service-wide fire management policy is specifically expressed in Director's Order 18 (DO-18) and the attendant Reference Manual (RM-18). The Fire Management Plan for Yukon-Charley Rivers National Preserve (YUCH) complies fully with these directives.

The actions described within this plan also meet the requirements of the National Environmental Planning Act (NEPA), the National Historical Preservation Act (NHPA), and the Alaska National Interest Lands Conservation Act (ANILCA). Compliance with these acts will be demonstrated as follows:

- The YUCH Fire Management Plan is accompanied by an Environmental Assessment (Appendix D.1.), a substantive discussion of the effects upon the Preserve's natural and cultural resources by several alternative actions, including the proposed course of action explained throughout the FMP.

- The Environmental Assessment, in turn, is accompanied by an ANILCA 810(a) Summary Evaluation and Findings document (Appendix D.2), an assessment of the impacts of the proposed actions upon subsistence activities within the Preserve.

- The Fire Management Plan, Environmental Assessment, and 810(a) Summary Evaluation and Findings will be submitted to National Park Service staff members at Yukon-Charley National Preserve and in the Alaska Regional Support Office for review of operational soundness and compliance with federal policy.

- The Fire Management Plan, Environmental Assessment, and 810(a) Summary Evaluation and Findings will be submitted for review to local communities, local native corporations, and to all state and federal agencies holding or administering lands adjacent to or in the proximity of the Preserve.

- The State Historic Preservation Officer (SHPO) will review the Fire Management Plan and Environmental Assessment for compliance with the National Historical Preservation Act; in addition the SHPO will review all individual prescribed fire burn plans prior to their approval by the Superintendent.

- Notice of Availability of the FMP and accompanying Environmental Assessment will be made locally, with public comments accepted by the NPS for a period of thirty days thereafter.

II. COMPLIANCE WITH NPS AND INTERAGENCY POLICY

A. Relation of Fire Management Program to NPS and YUCH General Management Policy

National Park Service Management Policies Director's Orders 18 (1988) directs individual parks to manage natural resources, and to maintain, rehabilitate, and perpetuate their inherent integrity. More specifically, NPS Management Policies recognizes the need to foster a healthy and natural fire ecology within individual parks, through the development of fire management programs designed around resource management objectives.

In 1980 Congress created the Yukon-Charley Rivers National Preserve through the passing of the Alaska National Interest Lands Conservation Act (ANILCA), a comprehensive statement of purpose for several new Alaskan Park and Preserve areas. Section 201[10] of ANILCA specifically establishes Yukon-Charley Rivers National Preserve and ascribes to it the following mission: to "maintain the environmental integrity of the entire Charley River basin…in its undeveloped natural condition for public benefit and scientific study; to protect habitat for, and populations of, fish and wildlife, including but not limited to the peregrine falcons and other raptorial birds, caribou, moose, Dall sheep, grizzly bears and wolves; and in a manner consistent with the foregoing, to protect and interpret historical sites and events associated with the gold rush

on the Yukon River and the geological and paleontological history and cultural prehistory of the area…."
The YUCH General Management Plan (1985) states that the Preserve will be managed so as to remain "a benchmark for measuring the effects of natural forces and human activity on similar environments"; accordingly, the GMP specifies that the Preserve's natural resources "will be monitored so that threats to natural systems can be quickly identified and a strategy developed to avoid adverse effects." The GMP also specifies the protection of significant cultural resources.

The current YUCH Resource Management Plan (1994) comprises an action plan for the implementation of the goals outlined in the Preserve's GMP and as such provides resource-oriented guidelines for the development of a fire management program for Yukon-Charley Rivers National Preserve. With respect to fire management, the RMP identifies three especially relevant objectives: 1) the maintenance of natural processes, including fire, "to the greatest degree possible while protecting human life, private property, cultural sites, critical habitat, and endangered species"; 2) the minimization of human-caused disturbances, such as the manipulation of habitat or wildlife populations, except in extreme circumstances (e.g., the preservation of an endangered species); and 3) the stabilization and restoration of significant historical structures and districts. Project Statement YUCH-N-004.0, contained within the RMP, specifies the development of an integrated fire management program which will incorporate the existing interagency suppression plan while also addressing park-specific suppression capability as well as the possible use of wildland or prescribed fire [identified in the RMP as prescribed natural fire and management ignited prescribed fire, respectively] for resource benefit and/or hazard fuels reduction.

The accomplishment of the resource management objectives described above will occasionally demand the prioritization of wildland fire management activities by the entire Yukon-Charley staff. Large or complex wildland fire incidents may demand the involvement of most or all Preserve personnel, in some cases for extended periods of time.

B. Relation of Fire Management Program to NPS and Interagency Fire Management Policy

Federal Wildland Fire Management Policy

In accordance with the Federal Wildland Fire Management Policy Review signed in 1995 by the Secretaries of Agriculture and Interior, the NPS has recently made significant changes in its fire management directives. These changes are expressed in **DO-18**; specific ramifications are discussed in RM-18, a continuously evolving electronic document available through the NPS website (http://fire.nifc.nps.gov.). As specified by DO-18, ignitions on NPS lands are categorized as either **Prescribed** or **Wildland Fires**, the former category consisting only of those ignitions pre-authorized and implemented by park management, and the latter category consisting of any naturally caused or unplanned human-caused ignitions. Upon approval and signature of this FMP, detection of any

wildland fire on NPS lands will trigger the selection of a specific action aimed at protection and/or the accomplishment of fire-use objectives. All human-caused wildland fires will receive a suppression response. As with any fire management action, however, responses to human-caused wildland fires will take into account firefighter and public safety, values to be protected, cost effectiveness, and damage from suppression action; thus even though such incidents will not be managed for the purpose of resource benefit, the spectrum of possible actions for human-caused wildland fires will nonetheless range from aggressive initial attack to indirect containment and/or surveillance. Management actions for natural ignitions, in turn, may be directed either toward suppression or, in the case of ignitions occurring under conditions pre-designated by this Fire Management Plan, management strategies may include the full spectrum of responses to manage the fire for the benefit of the resources. The successful use of **Prescribed Fire**, in contrast, is authorized instead by a formal plan prepared by the Fire Management Officer (FMO) (or delegate), reviewed by the SHPO, and approved by the Preserve Superintendent prior to ignition.

In order to facilitate the designation and selection of the management options described above, each NPS unit will identify predetermined **Fire Management Units** (**FMU**s) in its Fire Management Plan, with specific management strategies (or combinations thereof) specified for each FMU. The management options permitted under DO-18 are summarized again in figure 1.

Figure 1: **DO-18 Management Options**

<table>
<tr><th colspan="2">Management Option</th><th>Intent</th><th>Policy</th></tr>
<tr><td colspan="2">Prescribed Fire Use
Prescribed Fire Plan → management-implemented ignition</td><td rowspan="2">• Resource benefit.
• Long-term protection of life, property, and/or fire sensitive resources.
• Restoration of historic conditions.
• Cost effectiveness.</td><td rowspan="2">• May only be implemented within FMUs designated for such use.
• Management strategy or prescribed fire plan should be based on resource management objectives.</td></tr>
<tr><td colspan="2">Wildland Fire Use
Natural ignition →managed based on resource management objectives</td></tr>
<tr><td rowspan="2">Wildland Fire Suppression</td><td>Natural ignition → suppression response</td><td rowspan="2">• Immediate protection of life, property, and/or fire-sensitive resources.
• Cost effectiveness.</td><td>• Suppression actions triggered automatically in certain FMUs.
• Suppression actions may be selected by Agency Administrator in any FMU.
• Suppression actions must not be based on resource management objectives.</td></tr>
<tr><td>Unplanned human-caused ignition → suppression response</td><td>• Suppression response mandated by federal fire management policy.
• Suppression response must not be based on resource management objectives.</td></tr>
</table>

Alaska Interagency Wildland Fire Management Responsibilities

In Alaska, primary responsibility for suppression is divided amongst the Alaska Department of Natural Resources (DNR), the US Forest Service, and the Bureau of Land Management's Alaska Fire Service. The BLM-AFS carries the primary responsibility for suppression actions on lands within Yukon-Charley Rivers National Preserve. Although BLM-AFS has primary responsibility for suppression, the Department of Interior Departmental Manual, Part 620, Chapter 2, Section 2.4 states that "Nothing herein relieves agency administrators in the Interior bureaus of the management responsibility and accountability of activities occurring on their respective lands." Section 2.4 goes on to state that "Each bureau will continue to use its delegated authority for applications of wildland fire management activities such as planning, education, and prevention, use of prescribed fire, establishing emergency suppression strategies, and setting emergency suppression priorities for the wildland fire suppression organization on respective bureau lands."

The NPS, as well as the US Fish and Wildlife Service, the Bureau of Indian Affairs, and Native Corporations and Native Villages participates in wildland fire management training and provides suppression resources during periods of increased fire activity in the Preserve, Alaska and the contiguous United States. Although the use of NPS personnel for initial attack and structure protection is not common, qualified NPS personnel may provide initial attack if they are the closest resources or if no other initial attack resources are available. Qualified NPS personnel may also provide structure protection under similar circumstances.

In 1983 the NPS cooperated with the BLM, the Alaska DNR, the Alaska Department of Fish and Game, the US Forest Service, the US Fish and Wildlife Service, the Bureau of Indian Affairs, and Native Regional and Village Corporations to produce an Interagency Fire Management Plan for the Fortymile Planning Area. This plan provided direction for fire management activity for YUCH until 1998, when a variety of documents, including 13 local planning area FMPs, were consolidated and approved as the **Alaska Interagency Wildland Fire Management Plan** (AIWFMP). Copies of these plans can be found at the Yukon-Charley Rivers National Preserve Headquarters in Eagle, Alaska. Under the AIWFMP, fire protection needs are determined through annual land manager/owner reviews and lands are then placed under **Critical**, **Full**, **Modified**, or **Limited** protection categories, with categorization based on values to be protected as well as the managing agency's resource management objectives, policies and mandates. These categories are discussed in detail in the AIWFMP. They are summarized below in figure 2.

Figure 2: **AIWFMP Management Options**

Protection Category	Policy	Intent
Critical	• Aggressive suppression of fires within or threatening designated areas. • Highest priority for available resources.	• Prioritization of suppression actions for wildland fires threatening human life, inhabited property, and/or other designated structures. • Complete protection of designated sites
Full	• Aggressive suppression of fires within or threatening designated areas, depending upon availability of resources.	• Protection of uninhabited cultural and historical sites, private property, and high-value natural resources.
Modified	• Fires in designated areas receive initial attack depending on availability of resources, unless land manager chooses otherwise and documents with WFSA. • After designated **conversion date**, operational response to Modified protection zones is identical to that of Limited zones.	• Greater flexibility in selection of suppression strategies when chance of spread is high (e.g., indirect attack). • Reduced commitment of resources when risk is low. • Balancing of acres burned with suppression costs and with accomplishment of resource management objectives.
Limited	• Wildland fires allowed to burn within predetermined areas. • Continued protection of human life and site-specific values. • Surveillance.	• Reduction of long-term costs and risks through reduced frequency of large fires. • Reduction of immediate suppression costs. • Facilitation of bio-diversity and ecological health

Integration of DO-18 and the Alaska Interagency Wildland Fire Management Plan

The fire management program at Yukon-Charley Rivers National Preserve complies with the policies resulting from the Federal Wildland Fire Management Policy Review of 1995 as well as those established by the Alaska Interagency Wildland Fire Management Plan. In accordance with DO-18, the Preserve has been sub-divided into three Fire Management Units, each indexed to an appropriate AIWFMP category. This integration of NPS categories and AIWFMP categories is summarized below in figure 3. (YUCH FMUs will be described in detail in Chapter IV; the following summary is intended merely to clarify the relationship between NPS policy and the AIWFMP and to demonstrate the Preserve's compliance with both.)

Figure 3: **Integration of AIWFMP and DO-18 Policy at YUCH**

YUCH Fire ManagementUnits (derived from AIWFMP Protection Categories)	**Possible Rationales for FMU Determination**	**Applicable Management Strategies**
Critical (no YUCH FMUs in this category)	• Presence of permanent residences and valuable cultural resources, including National Historical Landmarks.	• Suppression • Prescribed Fire Use
Full	• Presence of private structures and of structures included on the National Register of Historical Places. • Proximity to Critical FMU.	• Suppression • Prescribed Fire Use • Wildland Fire Use
Modified	• Proximity to Critical and Full FMUs. • Presence of fire-dependent ecosystems. • Appropriate balance of cost and control.	• Suppression • Prescribed Fire Use • Wildland Fire Use
Limited	• Presence of fire-dependent ecosystems. • Relative lack of significant fire-sensitive resources.	• Wildland Fire Use • Prescribed Fire Use • Suppression

III. DESCRIPTION OF YUKON-CHARLEY NATIONAL PRESERVE

A. Natural Characteristics

Yukon-Charley Rivers National Preserve encompasses 2.52 million acres, of which the federal government holds 84%. Much of the remaining land belongs to Doyon, Ltd., the regional native corporation; other ownership categories include Village Corporation tracts, Native allotments, and patented/unpatented mining claims. Located in the eastern interior of Alaska and bordering the Yukon Territory, Canada, the Preserve is bracketed by the small, road-connected communities of Eagle and Eagle Village to the east and Circle City, Central, and Circle Hot Springs to the northwest. The large and historically significant Yukon River and nearly undisturbed Charley River provide access to the Preserve's roadless interior.

The Yukon River valley is composed of low, rounded benches and ridges trending southwest to northeast. The valley region rises noticeably south of the Yukon River and gives way to the mountainous region of the Yukon-Tanana uplands. Elevations become progressively higher moving east from Circle, at 600 feet above sea level, to the U.S.-Canadian border, where mountains reach 6,000 feet. YUCH lies within a climatic region known as the interior basin. Mountains to the north and south tend to block moderating oceanic air masses, resulting in extremely low temperatures and low-level inversions in

the winter and high temperatures and low precipitation in the summer. (See Chapter VI, Section A for a discussion of historical weather at YUCH.)

The Yukon-Charley region lies within a greater ecological zone known as the Taiga, or northern boreal forest, an area extending from the Alaskan interior east into Canada and dominated by spruce and several species of deciduous hardwoods. In the Preserve, as elsewhere in the Taiga, lowlands and drainages are often heavily forested. Uplands become more thinly forested with increasing elevation, with most areas above 2,000 feet consisting of treeless shrub tundra. Tundra dominated by tussock-forming sedges occurs at lower elevation sites where poor drainage precludes the presence of black spruce stands. Much of the preserve is underlain by permafrost as much as several hundred feet thick, with the top of the permafrost layer often lying as little as 2 or 3 feet below the surface at the peak of summer. Permafrost hinders subsurface drainage, causing unstable soil conditions on sloping surfaces; consequently when surfaces are disturbed and permafrost is allowed to melt, soils often collapse.

The Preserve is home to Dall sheep, moose, caribou, grizzly and black bear, wolves, and various small-mammal species; to eighteen species of fish; and to 159 species of birds, including twenty different species of raptor.

(See Chapter XVI and the YUCH Resource Management Plan for discussions of threatened, endangered, or rare plant and animal species found within the Preserve; see Chapter V, below, for a discussion of the Preserve's fire history and ecology.)

B. Cultural Features

The history of the Yukon-Charley Rivers area includes occupations by Athabaskan peoples as well as by white participants in the turn-of-the-century gold rush. There are 290 cultural sites recorded thus far for Yukon-Charley, approximately 126 of which contain some manner of combustible structural components, such as cabins, caches, root cellars, outhouses, meat drying racks, blacksmith shops, doghouses, etc. The remaining 164 sites are prehistoric and historic, containing largely lithic and organic materials and little to no combustible components, aside from an occasional fish or meat drying rack. (See YUCH Resource Management Plan, Chapter II, Sections C and D for a discussion of historic sites and their classification. The YUCH Cabin Management Plan, currently in development, will be referenced in future revisions of the FMP.)

C. Non-Federal Land Ownership within the Preserve

Certain lands contained within Yukon-Charley Rivers National Preserve were previously made available for Native Alaskan selection under the Alaska Native Claims Settlement Act, through the establishment of regional and village corporations and their designation of small tract allotments. The majority of the corporate lands and small-tract allotments that were selected within the boundaries of Yukon-Charley have been conveyed; most are

located in the northeastern portion of the Preserve and within the Nation and the Kandik river watersheds.

Other non-federal holdings within the preserve include mining claims, state-owned submerged lands, and small private tracks located at Miller Camp, near the Nation townsite, at the Woodchopper mine, and near Twenty-eight Mile (upstream from Circle on the Yukon). Private lands are subject to development by their owners.

(See the Yukon-Charley GMP's accompanying Land Protection Plan for acreage and locations of the non-federal lands within the preserve.)

D. Ownership of Adjacent Lands

Lands adjacent to YUCH fall under the following categories of ownership:

- Steese National Conservation Area (BLM)
- Public domain (BLM)
- State-owned
- State-selected
- Native-owned land
- Native-selected land
- Canadian public lands (Yukon territorial government)

(See the YUCH GMP's accompanying Land Protection Plan for details on ownership of adjacent lands.)

IV. GOALS AND OBJECTIVES

A. Resource Management Goals and Objectives at YUCH

As defined by the Alaska National Interest Lands Conservation Act, the Preserve's foremost purpose is "to maintain the environmental integrity of the entire Charley River basin…in its undeveloped natural condition for public benefit and scientific study; to protect habitat for, and populations of, fish and wildlife…; and in a manner consistent with the foregoing, to protect and interpret historical sites and events associated with the gold rush on the Yukon River and the geological and paleontological history and cultural prehistory of the area…."

B. Fire Management Goals at YUCH

Whenever safely possible, Yukon-Charley Rivers National Preserve will utilize the role of fire in the natural environment in the fulfillment of NPS natural resource management directives. Accordingly, the Preserve will direct all fire management activities toward the accomplishment of the following goals:

1. The protection of human life, property, and irreplaceable natural and cultural resources.

2. The preservation of the natural fire ecology of the Yukon-Charley region.

3. The use of selected wildland fires for the accomplishment of resource management objectives and for the reduction of hazardous fuels.

4. The minimization of adverse effects of fire and/or fire-suppression activities.

5. The coordination and scientific management of wildland fire on the basis of the best natural resource management program goals and objectives.

6. The education of employees and public about the scope and effect of wildland fire management.

7. The management of wildland fire incidents in accordance with accepted interagency standards and the achievement of maximum efficiency through interagency coordination and cooperation.

8. The development of on-site protection capabilities at the Preserve through the training of YUCH personnel and acquisition of wildland firefighting equipment.

9. Provision of fire situation, fire behavior and fire effects information to the Preserve Superintendent and to appropriate Alaska Fire Service personnel.

V. HISTORIC ROLE OF FIRE AT YUCH

Fire has been an inextricable component of the ecosystems of the Yukon-Charley area for thousands of years, with periodic fires having served throughout the centuries to select plants and animals that are adapted to fire-caused change. Both the black and white spruce, for example, depend on intense ground fire to clear organic layers and to thereby expose fertile seedbed. Black spruce, moreover, is at least partially dependent upon stand-replacement fire, in that it's seeds become ready for germination at the peak of the Alaskan interior fire season and are released when its semi-serotinous cones are opened by canopy fire. Even more fundamentally, fire plays a key role in the regulation of the permafrost table throughout all the ecosystems of the Alaskan interior. Without fire, organic matter accumulates, the permafrost table rises, and ecosystem productivity

declines. Vegetation communities become much less diverse, and wildlife habitat decreases. Fire rejuvenates these systems. It removes some of the insulating organic matter and elicits a warming of the soil. Nutrients are added both as a result of combustion and by increased decomposition rates.
The impact of aggressive suppression on the Alaskan interior at large and the Yukon-Charley area in particular is difficult to assess. Organized suppression has occurred on a large scale in Alaska since 1939, when the Alaska Fire Control Service (predecessor to the AFS) was established; the effects of this activity, however, are not yet clear. The reduction of total fire acreage has been unmistakable; a past study of the Tanana/Minchumina Planning Area showed that annual burned acreage hovered around 900,000 between 1957 and 1981, down from an estimated 1.5 to 2.5 million acres prior to 1940. Yet despite this reduction, large, high-intensity fires away from villages or roads remain a frequent occurrence—in part because the detection of interior fires remains difficult, with many fires burning for days or weeks without being observed. Alaskan fire management personnel feel that the fire ecology of the roadless portions of the Yukon-Charley area may be relatively unchanged from its condition prior to the arrival of whites and the subsequent development of organized suppression efforts.

VI. WILDLAND FIRE MANAGEMENT SITUATION

A. Weather Analysis

As already indicated, YUCH lies within Alaska's interior basin, where mountains to the north and south tend to block moderating oceanic air masses; this configuration results in extremely low temperatures and low-level inversions in the winter and high temperatures and low precipitation in the summer.

General weather patterns for the Preserve are as follows: During July, the warmest month at YUCH, the average daily temperature is approximately 60°F, with highs into the mid 90s. Average daily temperature for January, the coldest month, is approximately 13°F, with temperatures falling as low as -60 or -70°F. Daily fluctuations can be extreme, with freezing temperatures possible throughout the summer. Summers are warm but short; the frost-free period typically lasts about 90 days. Sunlight approaches 22 hours on June 21. Precipitation generally totals less than 12 inches annually, about half of which occurs during the summer, usually in the form of short, potentially severe thunderstorms. Winds in the Preserve are predominantly out of the northeast; they generally follow canyons and valleys, where they can reach speeds around 60 mph.

The National Park Service maintains RAWS stations at two sites within the Preserve: one at **Eagle** (Preserve headquarters) and another at **Ben Creek** (located atop the ridge immediately to the north of the Ben Creek drainage, on the south side of the Yukon River). Data from both RAWS sites is available on the Internet through the Alaska Fire Service homepage (go to **fire.ak.blm.gov**.; next click **weather**, then **AFS RAWS Interactive Query**). Information collected from these RAWS sites contribute to interagency efforts to monitor fire weather and generate fire weather indices. All RAWS records are kept at the Western Region Climatological Center.

B. Fuel Characteristics and Fire Behavior

Fire behavior is essentially a function of fuel type, fuel loading, fuel moisture content, topography, and local weather conditions. Yukon-Charley Rivers National Preserve exhibits three major fire behavior systems of vegetation:

Grass: characterized by continuous grass cover, with occasional trees or shrub clumps that do not appreciably affect fire behavior. Two subtypes are found in this system; matted grass common after snowmelt in the spring and standing dead grass common in late summer to early fall. The live to dead ratio and wind speed in grasslands has a pronounced effect on fire spread.

Fire behavior in both grass subtypes is relatively easy to suppress. This fuel type burns during the spring and fall. The burning period is shorter due to less solar radiation and high humidity recovery at night, diurnal effect. The rate of spread can be high in this fuel type but there is limited smoldering and mop-up is relatively easy.

Mixedwoods: characterized by aspen, willow, cottonwood, birch, and white spruce. On any specific site, individual species can be present or absent from the mixture. Stand mixtures exhibit wide variability in age and stand structure. Two phases associated with the seasonal variation in the flammability of the hardwoods are recognized; the leafless stage occurring during the spring and fall and the green stage during summer.

Rate of spread in both fuel types is weighted according to the proportion of softwood and hardwood components. In areas where the proportion of hardwoods is greater than softwoods, when the deciduous overstory and understory are in leaf, fire spread is greatly reduced with maximum spread rates only 1/5 that of spring or fall fires under similar burning conditions. During spring and fall, when the deciduous overstory and understory are leafless, the leaf litter can burn like the grass models. The diurnal effect shortens the burning period and there is little smoldering. In areas where the proportion of softwoods is greater than hardwoods, the dryness of the organic matte will dictate difficulty of extinguishment. The rate of spread will be relatively slow in these areas unless there is a very large grass component.

Conifers: Two different types exist under this system.

Spruce-Lichen Woodland: This fuel type is characterized by open, park-like black spruce. Stands occupy well-drained upland sites. Forest cover occurs as widely spaced individuals and dense clumps. Tree heights vary considerably, but bole branches (live and dead) uniformly extend to the forest floor and layer development is extensive. Woody surface fuel accumulation is very light and scattered. Shrub cover is exceedingly sparse. The ground surface is fully exposed to the sun and covered by a nearly continuous mat of reindeer lichens, averaging 3-4 cm in depth.

This fuel type may not support a high rate of spread or continuous crown fire. Mop-up may be difficult if the organic mat is deep and dry. Fire in this fuel type is relatively easy to control as it is dominated by the surface fire.

Boreal Spruce: This fuel type is characterized by pure, moderately well stocked black spruce stands on poorly drained sites. Tree crowns extend to or near the ground and dead branches are typically draped with bearded lichens. The flaky nature of the bark on the lower portion of stem boles is pronounced. Low to moderate volumes of down woody material is present. Labrador tea is often the major shrub component. A carpet of feather mosses and/or ground-dwelling lichens dominate the forest floor. Sphagnum mosses may occasionally be present. A compacted organic layer commonly exceeds a depth of 20-30 cm.

Stand replacement and crown fires dominate fire behavior in this fuel type. At a rate of spread of 10 chains/hour a crown fire may be initiated. It is common to have spotting by aerial firebrands in a crowning spruce fire. Wind is the crucial factor, with spotting often occurring ½ mile ahead of the fire and up to two miles. The carrier fuel is the organic matte that has a tremendous surface-to volume ratio with immediate responses to changes in relative humidity, solar radiation, and wind. Rate of spread is relatively slow and predictable, while intensity is high in surface fuels. Mop-up may be difficult if the organic mat is dry.

D. Fire Season

As explained in the Fortymile Interim Fire Management Plan (1979) the seasonal fire cycle in the Alaskan interior consists of four "micro" seasons or phases, each varying with the changing weather patterns and the stages of vegetation development for the growing season.

The first begins in late April or early May with the loss of snow cover, and ends in late May or early June when greenup begins. During the transition from 100% winter-cured fuels to greenup, human-caused fires occur frequently; these fires are usually relatively easy to suppress due to high relative humidity recovery at night, cool day and night temperatures, and close proximity to roads, airstrips, and/or navigable water. Spring fires that are not suppressed, however, often grow later in the season as fuels become dryer.

The second and third fire-cycle phases are primarily lightning driven. Suppression of such fires is harder, because of their occurrence in remote areas where detection and access are more difficult and because in turn more time typically passes between detection and initial attack. Fires occurring in June, the second period, usually do not develop the intensity of later summer fires; during hot, dry, and windy conditions, however, June wildland ignitions can result in extreme fire behavior.

The third period of fire activity begins in mid-July and runs through the first part of August. This is the period of maximum fire activity. The usual problems of accessibility and detection are compounded by increased rates of spread and higher fire intensities due to lower fuel moisture levels. Even with prompt initial attack, fires are often beyond immediate control by the time forces arrive, and indirect attack is often the only viable suppression strategy.

The final micro-season runs from late August into early September. Ignitions occurring during this period are usually caused by hunters and fishermen. These fires are generally easy to control except during particularly dry autumn weather.

E. Historical Alterations of Fuel Regimes

The large-scale alterations to the fuel regimes in the Preserve are the result of fire. There have been minimal large-scale alterations due to humans. Relatively small-scale alterations have occurred surrounding roadhouses, mining camps, and woodchopper cabins.

F. Control Problems

Control and extinguishment problems are dependent on fuel type, fuel loading, weather, and time of year. Alaska has four distinct periods of fire activity with different control and extinguishment problems associated with each.

Spring Green-up: Ignitions during spring green-up are usually wind driven surface fires that are relatively easy to control and extinguish. High winds can cause high rates of spread and control may be more difficult. These fires are mostly limited to fine fuels directly exposed to solar radiation, humidity, wind, and precipitation (i.e. grass). This period is typically from May 15 to June 10.

Transitional: Ignitions during this time are typically more difficult to control as hand-constructed firebreaks are likely to be challenged. Water under pressure (i.e. fire pumps with hose lays) and aerial support (i.e. medium helicopter with bucket) may be required for effective action at the fire's head. This period is typically from June 10 to July 10.

Cumulative Drought: Initial ignitions during this time and carryover fires from the previous period are most difficult to control and extinguish and may require indirect attack, aerial firing, and the use of natural barriers. Direct attack is rarely possible given the fire's intensity except immediately after ignition and should only be attempted with the utmost caution. Suppression action must be restricted to the flanks and back of the fire. Indirect attack with aerial ignition, if available, may be effective depending on the fire's forward rate of spread. Extinguishment may be difficult particularly in the conifers and mixedwoods due to the deep, dry organic matte. This period is typically from July 10 to August 15.

Diurnal Effect – Ignitions during this period are easier to suppress because the reduced daylight allows for relative humidity to recover and shorter burning period. These fires are limited to fine fuels directly exposed to solar radiation (i.e. grass). Smoldering and creeping from large fires from the previous periods may still be evident. This period is typically from August 15 to September 30.

VII. SCOPE OF WILDLAND FIRE MANAGEMENT PROGRAM

A. YUCH Fire Management Strategies

The following fire management strategies will be used at YUCH, exclusively or in combination, as directed by NPS and Preserve policy and as specified by the respective parameters of the Preserve's three Fire Management Units (FMUs):

Wildland Fire Suppression: All unplanned ignitions failing to meet predetermined conditions for Wildland Fire Use will be suppressed through the selection and implementation of a suppression-oriented strategy. In selecting suppression strategies, however, the Incident Commander and/or the Agency Administrator must consider firefighter and public safety, cost effectiveness, and impact of suppression activities, as well as protection of resources and values to be protected. Accordingly, suppression strategies may range from aggressive initial attack to surveillance and/or indirect containment.

Wildland Fire Use: Certain natural ignitions within the Preserve may be used to meet resource management objectives and reducing hazard fuel loads. Wildland fire use will be the pre-planned response for natural ignitions detected within the Preserve's Limited Protection FMU and in Modified Protection FMU after the conversion date. Wildland fire use will be automatically implemented in these cases on the authority of the YUCH Fire Management Plan, unless the Agency Administrator directs otherwise. Wildland fire use comprises an *alternative* response in the Preserve's Modified (prior to conversion date) and Full Protection FMUs, and may be implemented within these units by the Agency Administrator upon consultation and signing of the Decision Criteria checklist.

Prescribed Fire Use: Currently the Preserve has no plans to implement prescribed fire in the immediate future. Prescribed fire may, however, be an appropriate tool at YUCH for the purposes of hazard fuel reduction, scientific research, or restoration of historical landscapes/conditions at culturally significant sites. Prescribed fire use may be allowed within all three of the Preserve's FMUs as well as at Critical Protection sites, provided that such actions follow a written plan produced by the FMO or designate, reviewed by the State Historical Preservation Officer, and approved by the Preserve Superintendent prior to ignition. (See Chapter X for implementation procedures for Prescribed Fire.)

In addition to incident categories described above, Preserve administrators may implement a fourth fire management strategy:

Mechanical Fuel Reduction: YUCH managers may implement the use of powersaws, mowers, handtools, or similar devices to mitigate hazard fuel buildup or recreate historical landscape/conditions in areas where prescribed fire would pose an unreasonable threat to property or resources. Each mechanical fuel reduction action at YUCH must follow a written plan prepared by the Fire Management Officer (or delegate) and approved by the Superintendent.

B. Fire Management Units (FMUs)

As stated in the AIWFMP, "The authority to determine fire management options for lands selected within the boundaries of federal conservation units rests with the Department of the Interior and Agriculture. The State of Alaska and Native corporations may request fire management option(s) to the land manager/owner of the lands they selected, but [for which] the conveyance process has not been completed. For the purposes of the AIWFMP, lands managers/owners who have received interim conveyance or tentative approval for conveyance of land will select the fire management for those lands."

Determination of YUCH Fire Management Units and their respective policies is based on the proximity of values at risk, the role of fire within the Preserve's vegetative communities, and overall management objectives. Variables such as fuel type, loading, and moisture level will be considered in the decision-making process for specific incidents, as well as in the writing of individual prescribed fire plans. Predetermined management parameters for FMUs, however, will tend to be based instead on relative risk posed to property or sensitive resources.

Each FMU corresponds with an appropriate Alaska Interagency Wildland Fire Management Plan protection category and will be managed accordingly. It should be noted that the areas contained within individual Fire Management Units at YUCH are not contiguous (e.g. the Modified Protection FMU includes acreage in both the southeast and northwest corners of the Preserve). The following map shows the general location of the Preserve's FMU boundaries as well as the AIWFMP protection zones for adjacent lands (see figure 4).

A statewide Multi-Agency Coordination (MAC) group will be convened when the Alaska Preparedness Level reaches Level 4 or 5, to establish priorities for suppression resource allocation and to determine the need for a temporary change in the selected fire management option identified in the AIWFMP for a specific geographic area(s). Such temporary changes may be implemented during periods of unusual fire conditions (e.g., numerous or unusually large fires, predicted drying trends, problematic smoke dispersal, shortages of suppression resources, unusually wet conditions, etc.). The duration and geographical extent of any such changes will be determined by the MAC group and will be reflected in the Preserve's FMUs, which will be managed accordingly.

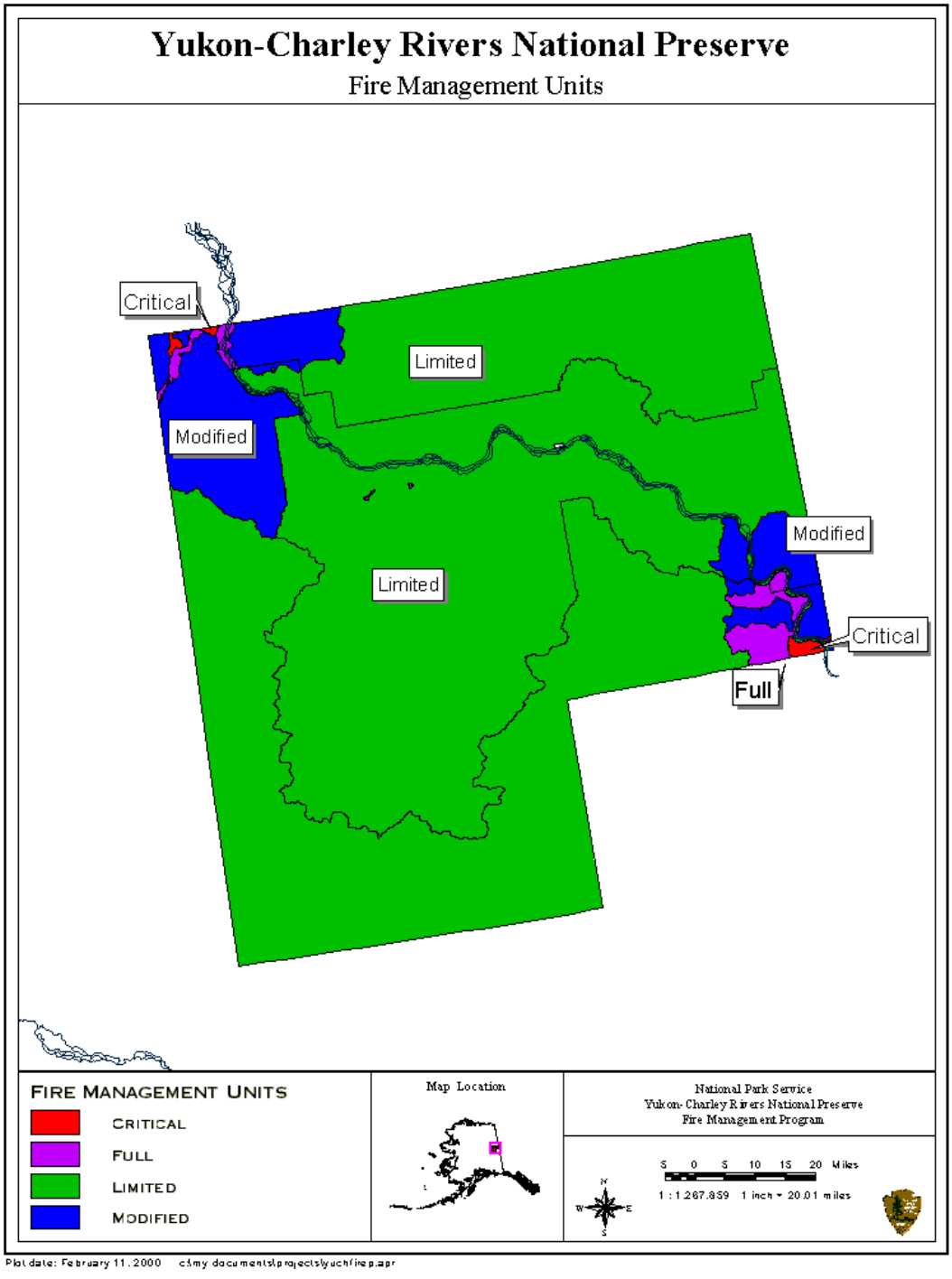

Yukon-Charley Rivers National Preserve
Fire Management Units
Critical
Limited
Modified
Limited
Modified
Critical
Full
FIRE MANAGEMENT UNITS
CRITICAL
FULL
LIMITED
MODIFIED
Map Location
National Park Service
Yukon-Charley Rivers National Preserve
Fire Management Program
5 0 5 10 15 20 Miles
1 : 1,267,859 1 inch = 20.01 miles
Plot date: February 11, 2000 c:\my documents\projects\yuchfirep.apr

Figure 4:

1. CRITICAL PROTECTION

a. Physical Descriptors

There are no Critical Protection FMUs at the Preserve. Three sites within the Preserve, however, have been designated as critical protection sites, and Preserve headquarters, located outside of the Preserve in the community of Eagle, lies within an AIWFMP critical protection zone. Critical sites within the Preserve are indicated on the zone dispatch fire atlas.

b. Management objectives

In accordance with the AIWFMP, the Alaska Fire Service and the National Park Service assign the highest priority to the aggressive suppression of ignitions occurring within Critical Protection zones and/or sites.

c. Management constraints

- The Preserve will make every reasonable effort to communicate to the public ongoing fire management efforts, fire situation, and socio-political and economic impacts of any fire management activities conducted within this FMU.

- Retardant and heavy equipment (including bulldozers) will not be used without the permission of the Superintendent (or delegate), except in life-threatening situations.

d. Special concerns

Employees involved in fire management activities will make every effort to avoid disruption of culturally and/or archeologically significant sites. The YUCH Agency Administrator has primary responsibility for ensuring timely consultation with cultural specialists concerning the location and protection of any such sites which might be impacted by wildland fire or fire management actions. Personnel participating in detection and/or reconnaissance flights will note any unrecorded structures or sites and report them to the Agency Administrator.

2. FULL PROTECTION FIRE MANAGEMENT UNIT

a. Physical descriptors

The Full Protection FMU (approximately 5,775 acres) consists of a single contiguous section in the Preserve's southeast corner, an area containing extensive tracts of Native-selected lands. In addition, several structures and Native allotments within the Preserve have been designated as full protection sites, as indicated on the zone dispatch fire atlas.

b. Management objectives

The primary objective in the Full Protection FMU is to protect valued resources by minimizing the presence of uncontrolled fire. The AFS and/or NPS will respond

whenever possible to ignitions within this FMU with aggressive **suppression**, unless the YUCH Agency Administrator requests otherwise. Wildland **fire use** may occur within this FMU with the Agency Administrator's signature of a Fire Situation sheet (see appendix E.1) and Decision Criteria checklist (see appendix E.2). **Prescribed fire** may also be implemented in this FMU, with the Superintendent's approval of a formal prescribed fire plan, for the purpose of reducing hazardous fuel accumulations or restoring historical conditions.

In all cases, fire management strategies for incidents within the Full Protection FMU and/or sites will be aimed primarily at the protection of structures and other valued resources. Mitigation of immediate threats will take precedence, but implementation of alternative strategies aimed at long-term hazard fuels reduction and/or other management goals will also be allowed when deemed appropriate by the Agency Administrator.

c. Management constraints

- The Preserve will make every reasonable effort to communicate to the public ongoing fire management efforts, fire situation, and socio-political and economic impacts of any fire management activities conducted within this FMU.

- Retardant and heavy equipment (including bulldozers) will not be used without the permission of the Superintendent (or delegate), except in life-threatening situations.

d. Special Concerns

Employees involved in fire management activities will make every effort to avoid disruption of culturally and/or archeologically significant sites. The YUCH Agency Administrator has primary responsibility for ensuring timely consultation with cultural specialists concerning the location and protection of any such sites which might be impacted by wildland fire or fire management actions. Personnel participating in detection and/or reconnaissance flights will note any unrecorded structures or sites and report them to the Agency Administrator.

3. MODIFIED PROTECTION FIRE MANAGEMENT UNIT

a. Physical descriptors

The Modified Protection FMU (approximately 100,000 acres) consists of two portions, located in the southeast and northwest corners of the Preserve, respectively.

b. Management objectives

The primary objective in the Modified Protection FMU is to achieve an appropriate balance between protection of life and property and cost effectiveness through the implementation of alternative **suppression** strategies. The AFS and/or NPS will provide initial attack for ignitions detected within the Modified Protection FMU if

adequate firefighting resources are available and conversion has not occurred. Immediate reduction of acreage burned is less of a priority than in Critical or Full FMUs; accordingly, Incident Managers will consider a wide range of suppression strategies, including containment by natural barrier or indirect use of retardant or handline. Wildland **fire use** is allowed within this FMU with the Agency Administrator's signature of a Fire Situation sheet and Decision Criteria checklist. Once the Modified Protection FMU has converted, management objectives are identical to those established for the Limited Protection FMU. **Prescribed fire** may be implemented in this FMU, with the Superintendent's approval of a formal prescribed fire plan, for the purpose of reducing hazardous fuel accumulations or restoring historical conditions.

c. Management constraints

- The Preserve will make every reasonable effort to communicate to the public ongoing fire management efforts, fire situation, and socio-political and economic impacts of any fire management activities conducted within this FMU.
- Retardant and heavy equipment (including bulldozers) will not be used without the permission of the Superintendent (or delegate), except in life-threatening situations.

d. Special concerns

Employees involved in fire management activities will make every effort to avoid disruption of culturally and/or archeologically significant sites. The YUCH Agency Administrator has primary responsibility for ensuring timely consultation with cultural specialists concerning the location and protection of any such sites which might be impacted by wildland fire or fire management actions. Personnel participating in detection and/or reconnaissance flights will note any unrecorded structures or sites and report them to the Agency Administrator.

4. LIMITED PROTECTION FIRE MANAGEMENT UNIT

a. Physical descriptors

The Limited Protection FMU (approximately 2,417,740 acres) includes all YUCH holdings not contained within the Full or Modified FMUs.

b. Management objectives

Due to the near absence of values at risk within this unit, most natural ignitions occurring within the Limited Protection FMU will be managed for the purpose of preserving fire within its natural role within the ecosystem.

c. Management constraints

- The Preserve will make every reasonable effort to communicate to the public ongoing fire management efforts, fire situation, and socio-political and economic impacts of any fire management activities conducted within this FMU.

- Retardant and heavy equipment (including bulldozers) will not be used without the permission of the Superintendent (or delegate), except in life-threatening situations

d. Special concerns

Employees involved in fire management activities must make every effort to avoid disruption of culturally and/or archeologically significant sites. The YUCH Agency Administrator has primary responsibility for ensuring timely consultation with cultural specialists concerning the location and protection of any such sites which might be impacted by wildland fire or fire management actions. Personnel participating in detection and/or reconnaissance flights will note any unrecorded structures or sites and report them to the Agency Administrator.

VIII. FIRE MANAGEMENT ORGANIZATION AND RESPONSIBILITIES

A. Organizational Structure

1. Cooperation with Alaska Fire Service

In order to ensure safe and efficient operations, a basic understanding of the cooperative relationship between the Preserve's fire management program and the BLM-Alaska Fire Service (AFS) is imperative for all Preserve personnel. As specified in the Alaska Interagency Wildland Fire Management Plan, the **Alaska Fire Service** is responsible for providing fire management suppression services on all wildland fires occurring within the Preserve. The management and staff of **Yukon-Charley Rivers National Preserve**, in turn, will ensure that all suppression services contribute to the achievement of the management goals of the Preserve and the National Park Service.

2. Unified Command

When an NPS Fire Management Officer is available for Yukon-Charley wildland fire incidents, the Preserve may choose to invoke a Unified Command. Under these circumstances the designated **Incident Commander** and the on-scene **Fire Management Officer** will coordinate with one another in the selection and implementation of all fire management strategies. As such, the IC and FMO will share responsibility for both the safety and effectiveness of fireline operations as well as the identification and accomplishment of YUCH resource management goals.

3. Agency Administrator

Regardless of whether a Unified Command has been implemented, an Agency Administrator will be designated for each incident at Yukon-Charley. The Agency Administrator will function as the direct representative of the Preserve Superintendent and as such will be responsible for the identification and accomplishment of YUCH and NPS resource management goals. The Agency Administrator will prepare and sign key

decision-making and validation documents (e.g. Wildland Fire Implementation Plan (WFIP) and Wildland Fire Situation Analysis (WFSA) components). The Agency Administrator may also request that additional personnel be ordered to assist specifically with the accomplishment of YUCH and/or NPS goals (e.g., resource advisors, monitors, fire behavior analysts, etc.). For most wildland fire activities the YUCH Fire Management Officer will assume the role of Agency Administrator. If the YUCH FMO is participating in Unified Command or is otherwise unavailable, the Chief of Operation or Superintendent will either act as Agency Administrator or will designate an appropriate Preserve Staff member to this role.

4. Incident Command Structure

For incidents at Yukon-Charley managed under Unified Command, resource advisors will report to the planning section chief as per NWCG specifications for incident command structure. Other personnel requested specifically to assist with the accomplishment of agency or Preserve resource management goals (e.g. monitors, fire behavior analysts, fire-use module personnel, etc.) will normally report to the Fire Management Officer. Affected personnel will be briefed on contingent procedures and alternative chain of command for situations in which the FMO departs the incident or falls out of regular contact.

In summary, NPS personnel may participate in fire management operations within the Preserve in two distinct ways:

1) NPS employees may work to help ensure the achievement of Preserve management goals under the supervision of the Fire Management Officer (or the planning section chief, in the case of NPS personnel serving as resource advisors). (For example, an NPS employee working as a monitor in support of the fire use validation process would typically report to the Preserve FMO; a YUCH staff member advising an incident command team on the presence of sensitive resources would report to the planning section chief.)

2) NPS employees may serve directly with operational forces (or other branches of command) assigned by the Alaska Interagency Coordination Center, under supervisors provided by the AFS or ordered through the interagency mobilization system. (For instance, a YUCH employee assigned to assist smokejumpers during line construction on a small wildland fire might report directly to a jumper-in-charge dispatched from Fairbanks.)

   YUCH employees dispatched directly by the Preserve may occasionally serve as interim Incident Commanders, as qualified, on YUCH incidents. In most cases, however, operations will be conducted from the outset by the AFS, with YUCH managers focusing on the identification and achievement of resource management goals and the conduction of monitoring efforts when necessary.

5. Fire Management Responsibilities for YUCH Personnel

In light of the interagency nature of fire management actions at YUCH as well as the co-lateral nature of the Preserve's assigned FMO and fire crew, fire management responsibilities for individual Preserve employees are best explained in two steps. All personnel at YUCH have predetermined responsibilities within the Preserve's fire management program; these fixed responsibilities are shown in figure 5, below. For specific incidents, however, specific functions will be filled by any one of several appropriate personnel. These incident specific functions, their organizational structure, and lists of personnel who may perform them are shown in figure 6.

Figure 5: **Predetermined Fire Management Responsibilities**

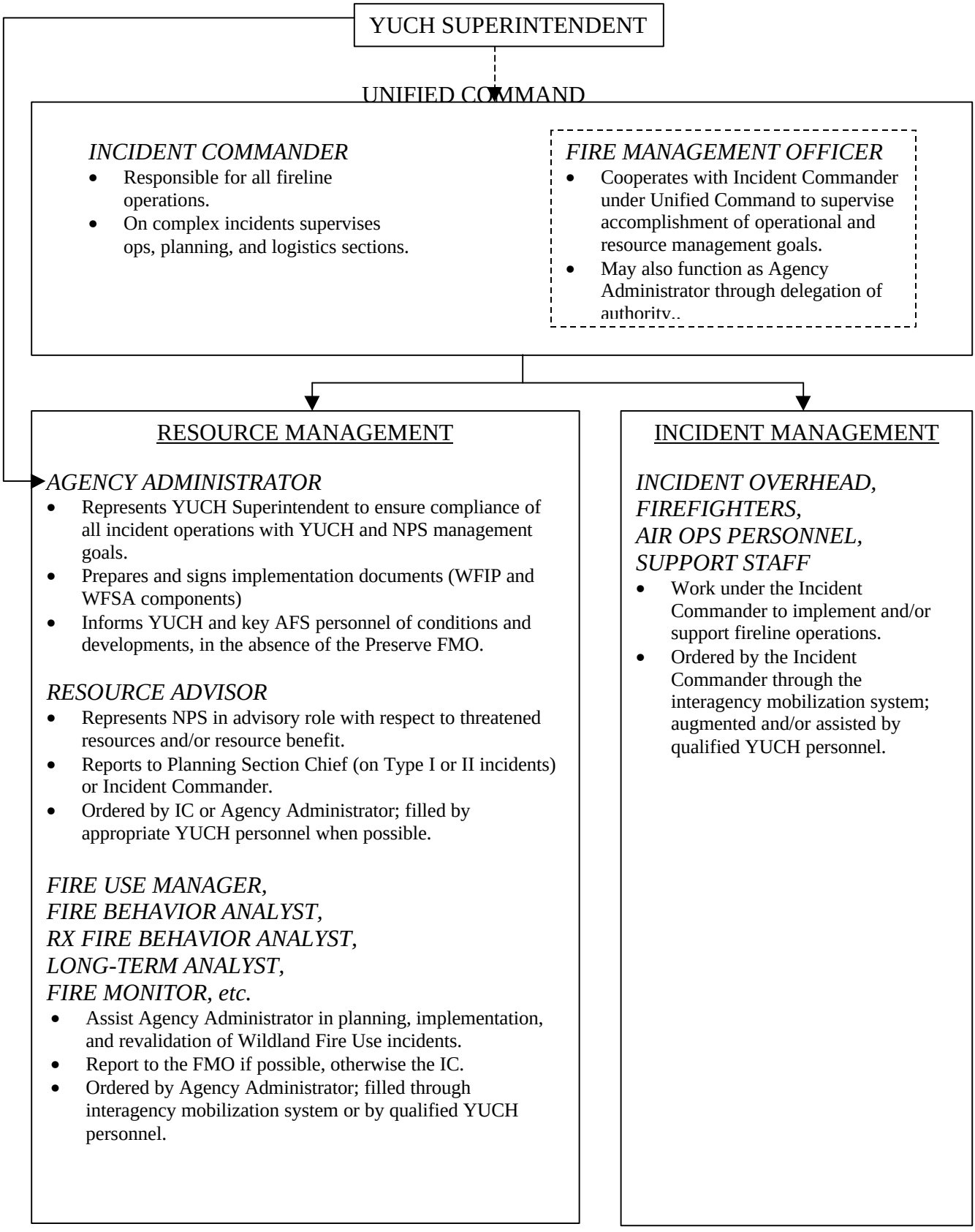
Position	**Superintendent**
Fire management role	The Superintendent of Yukon-Charley Rivers National Preserve is responsible for the planning and direction of all Preserve activities and programs and as such is ultimately responsible for any wildland fire operation at YUCH. The Superintendent may, however, choose to delegate any or all fire management responsibilities to appropriate personnel (e.g., Fire Management Officer, Chief of Operations, etc.).
Specific responsibilities	• Approves Limited Delegation of Authority and provides briefing and evaluation of Incident Management Teams. • Approves Wildland Fire Use implementation documents (or delegate's responsibility for approval to an appropriate individual). • Approves prescribed fire plans. • Approves mechanical hazard fuel reduction plans. • Approves use of retardant and/or heavy equipment in non life-threatening wildland fire situations. • Participates in all official fire reviews. • Participates in NWCG functions as qualified.
Position	**Chief of Operations**
Fire management role	The Chief of Operations is the on-scene supervisor for all Preserve operations.
Specific responsibilities	• Assumes function of Agency Administrator in the absence of the YUCH FMO from Preserve incidents, *or* delegates this function to the fire staff or Denali National Park (DENA) FMO. • Directly supervises the FMO in fire management issues pertaining to YUCH. • Participates in all official fire reviews. • Participates in NWCG functions as qualified.
Position	**Fire Management Officer**
Fire management role	The FMO oversees and coordinates the Preserve's fire management program. The Preserve's FMO is currently based at WRST and supervises the YUCH fire management program. Responsibilities listed below may be delegated to appropriate personnel (including, typically, the Chief of Operations, fire staff, and DENA FMO).

Specific responsibilities	• Cooperates with Incident Commander under Unified Command. • Serves as Agency Administrator for YUCH incidents when feasible. • Ensures that YUCH Superintendent/staff and key AFS personnel are informed of pertinent conditions and/or situations. • Works with YUCH staff and AFS zone managers to determine and adjust boundaries and strategies for YUCH FMUs. • Prepares Prescribed Fire Plans. • Prepares Mechanical Fuel Reduction Plans. • Represents Region and Preserve on taskforces and in agency and interagency training. • Ensures the education of Preserve staff on fire management issues. • Participates in all official fire reviews. • Prepares and maintains fire records and reports. • Prepares funding proposals and manages the Preserve's fire account. • Manages the Preserve's fire cache and coordinates acquisition of supplies. • Ensures qualifications of staff. • Serves as liaison with regional office staff. • Ensures Federal Fire Policy is followed. • Participates in NWCG functions as qualified.
Position	**Chief of Resource Management**
Fire management role	The YUCH Chief of Resource Management functions as the primary resource advisor for all fire management activities at the Preserve.
Specific responsibilities	• Advises YUCH Superintendent on approval of prescribed fire and mechanical reduction plans. • Advises Agency Administrator on wildland fire use for resource benefit. • Advises Agency Administrator and Incident Commander/overhead team of location and sensitivity of significant resources during wildland fire incidents. • Participates in all official fire reviews. • Assists with the development of fire management objectives. • Participates in NWCG functions as qualified.

(continued next page)

Position	**Interpretive Specialist**
Fire management role	The YUCH Interpretive Specialist is responsible for informing and educating media, visitors, and residents within and around the Preserve about all fire management goals, objectives, and actions.
Specific responsibilities	• Develops and coordinates on-going programs for educating the public about the area's fire ecology and the Preserve's fire management program. • Develops and coordinates a "step-up staffing plan" for disseminating information during large or complex incidents. • Informs public of current fire situation. • Participates in NWCG functions as qualified.
Position	**Fire Staff**
Fire management role	Fire staff are based at WRST and also work at YUCH to help plan and implement fire management activities within the Preserve.
Specific responsibilities	• May serve as Agency Administrator in the absence of the FMO, as qualified. • Serves as helicopter manager and/or crewmember during fire management and other resource management activities. • Serves as crew boss, etc. as qualified. • Supervises and assists with gathering and processing of data for use in long-term and incident-specific fire management planning. • Plans and implements hazard fuel reduction projects. • Assists with planning and supervision of prescribed fires. • Supervises and/or performs various resource management projects throughout the Preserve. • Participates in NWCG functions as qualified.
Position	**Other YUCH Employees**
Fire management role	Any YUCH employee may be assigned to assist with fire management activities as environmental and/or cultural specialists, logistical advisors, firefighters, support personnel, law enforcement officers, etc., depending on qualifications, skills, and regular duties.
Specific responsibilities	• Advising FMO or Agency Administrator during planning of fire management activities. • Gathering and processing of data for use in long-term and incident-specific fire management planning • Reports ignitions to the Preserve. • Firefighting. • Logistical support. • Law enforcement. • Participate in NWCG functions as qualified.

Figure 6: **Incident-Specific Fire Management Functions at YUCH**



B. Relation of Fire Management Program to YUCH Organization

As indicated in Section A, the YUCH fire management program is coordinated by a co-lateral duty FMO based at Wrangell-St. Elias National Park and Preserve. With respect to Yukon-Charley fire management issues and activities within the Preserve, however, the FMO reports directly to the YUCH Chief of Operations.

C. Periodic Assessment of Wildland Fire Use

The YUCH Superintendent is ultimately responsible for the re-certification of wildland fire use incidents through the signature of periodic assessments of suitability.

D. Interagency Coordination

(See Section A.)

E. Interagency Contacts

Pertinent interagency contacts include dispatch personnel at the Alaska Interagency Coordination Center as well as operational and dispatch personnel at the AFS Upper Yukon fire management zone office. Current phone numbers for these positions are listed in Appendix D.5.

F. Fire-Related Agreements

The cooperative arrangement between the NPS Alaskan Region and the BLM's Alaska Fire Service is discussed in the Alaska Interagency Wildland Fire Management Plan and is further specified in a memorandum of agreement currently in preparation. A copy of the current draft of the NPS/BLM fire management agreement is contained in Appendix D.1.

G. Reporting of New Ignitions

YUCH personnel with phone access should report undetected wildland fire (either possible or confirmed) directly to the Upper Yukon Fire Management Zone (see Appendix D.5. for phone number) and should be prepared to provide as much basic information as possible (size, fuel type, topography, fire behavior, current whether, probable cause, values at risk, etc.). When phone access is not available personnel should report wildland fire to YUCH dispatch (available by radio twenty-four hours a day).

H. Limited Delegation of Authority for Incident Management Teams

Type I and II Incident Management Teams ordered for and/or assigned to incidents at Yukon-Charley will operate under a written Limited Delegation of Authority, prepared and signed by the Preserve Superintendent or designee. The Limited Delegation of Authority will specify pertinent priorities, concerns, and constrains for the incident in

progress and will be treated as Preserve policy until the conclusion of the incident or the Superintendent's amendment of the original Delegation statement through a subsequent signed statement. Examples of Limited Delegation of Authority and Amendment to Delegation of Authority statements are contained in Appendix F.

IX. WILDLAND FIRE MANAGEMENT

A. Wildland Fire Use

1. Rationale

Federal and NPS policy requires that the following elements be in place before Wildland Fire Use is implemented: 1) an approved Fire Management Plan; 2) appropriate environmental/subsistence compliance; 3) pre-established Fire Management Units; 4) prescription for implementation including a natural ignition; and 5) management oversight. As defined in the Department of the Interior's Department Manual, Part 620, Chapter 1, Section 1.3K, the above-mentioned prescriptions will be based on "safety, public health, environmental, geographic, administrative, social or legal considerations." Geography comprises the primary prescriptive variable at Yukon-Charley; FMUs consist of extensive tracts of fire-dependent ecosystems, with relatively low numbers of resources to be protected.

As specified in the GMP and RMP, the Preserve's resource management objectives include the preservation of fire within its natural role whenever safely possible. Naturally occurring fires that do not threaten life or property offer an opportunity for the accomplishment of this objective; accordingly, wildland fire use for resource benefit may occur in each of the Preserve's FMUs when pre-specified conditions are met. Within the Limited Protection FMU fire often poses little if any threat to sensitive or valued resources. Consequently, the detection of ignitions within this FMU will automatically trigger wildland fire use unless the Agency Administrator specifies otherwise. Ignitions within the Modified (prior to the conversion date) and Full Protection FMUs will trigger suppression actions; fire use, however, will remain available in these FMUs as an alternative response upon the request of the Agency Administrator.

Selection and formulation of all responses, including wildland fire use, will be accomplished through the production of a **Wildland Fire Implementation Plan** (**WFIP**), described in Sections 4 through 9, below.

2. Objectives

The primary objective for wildland fire use at YUCH is to maintain the area's bio-diversity through the use of fire (including the naturally occurring spectrum of fire intensities and effects) while also ensuring the safety of life, property, and sensitive resources. Another important objective for fire use is the cost-effective reduction of hazard-fuel loads.

3. General Plan

Wildland fire use at YUCH is predicated upon the annual establishment and/or adjustment of appropriate boundaries and management options for the Preserve's FMUs. Each winter the YUCH FMO meets with Preserve staff members and fire management personnel from the AFS Upper Yukon Zone to re-evaluate the location and categorization of these units. Final authority for the adjustment of FMUs and/or fire protection categories within the Preserve rests with the YUCH Superintendent.

The FMU descriptions contained within this plan specify pre-planned management actions, to be enacted automatically by Upper Yukon - Tanana Zone dispatch; alternative actions, however, may be considered and/or selected by the Agency Administrator on a case-by-case basis, as determined by current fuel, weather, and fire management conditions and as dictated by NPS policy and the Preserve FMP.

4. Responsibility for Initiation of Decision Process

NPS policy requires that strategies for all wildland fires on NPS lands are selected using the initial stage of the **Wildland Fire Implementation Plan (WFIP)**, a standardized process for determining fire management responses and for documenting the resulting actions and outcomes. Ignitions occurring at YUCH trigger pre-planned actions, specified by FMU parameters and implemented by zone dispatch (and/or the Incident Commander) on the authority of the AIWFMP and the YUCH Fire Management Plan. In the case of pre-planned actions the initial WFIP components are satisfied by Upper Yukon-Tanana Zone dispatch through the recording of the ignition detection and subsequent determination of the incident location. The Preserve's FMU parameters also allow the implementation of *alternative* actions upon selection by the Agency Administrator; initial WFIP components for alternative actions are produced through the Agency Administrator's completion of a Fire Situation report and preparation and signing of a Decision Criteria checklist.

Wildland fire use is the pre-planned action in the Preserve's Limited Protection FMU and will be implemented automatically by Upper Yukon-Tanana Zone dispatch unless the Agency Administrator directs otherwise. Wildland fire use comprises an *alternative* action within the Modified (prior to conversion) and Full Protection FMUs, and is available in these units on condition of approval and documentation by the Agency Administrator through the preparation of the Fire Situation report and Decision Criteria checklist.

Responsibility for completion of initial WFIP components is summarized in figure 7.

Figure 7: **Responsibility for Initial WFIP Components at YUCH**

FMU	**Response Strategy** (* = pre-planned response)	**Required component**	**Completion timeframe**	**Responsible party**
Critical Protection	Suppression *	Recording of detection & determination of FMU	ASAP	Zone dispatch
Full Protection	Suppression *	Recording of detection & determination of FMU	ASAP	Zone dispatch
	Fire Use for Resource Benefit	**Fire Situation** report	ASAP	**Agency administrator** or zone dispatch
		Decision Criteria checklist	2 hours after detection	
Modified Protection	Suppression *	Recording of detection & determination of FMU	ASAP	Zone dispatch
	Fire Use for Resource Benefit	**Fire Situation** report	ASAP	**Agency administrator** or zone dispatch
		Decision Criteria checklist	2 hours after detection	
Limited Protection	Suppression	**Fire Situation** report	ASAP	**Agency administrator** or zone dispatch
		Decision Criteria checklist	2 hours after detection	
	Fire Use for Resource Benefit *	Recording of detection & determination of FMU	ASAP	Zone dispatch

*Note: Because the **Fire Situation** report is a useful source for the documentation of escalating incidents (i.e. WFSA and WFIP Stages II and III) it's recommended that the Agency Administrator complete a Fire Situation report even for default responses.*

Information used to complete the Fire Situation reports and Decision Criteria checklist is derived from initial fire reports, obtainable from zone dispatch. Copies of these two documents are found in Appendix E. WFIP components are further described in Chapter Four of the Wildland and Prescribed Fire Management Policy Implementation Guidelines, available on the internet at **fire.nifc.nps.gov/fire/policy/fedfire/chap4.htm**.

5. Staffing Requirements for Implementation of Wildland Fire

The Preserve has no specific requirements for the staffing of wildland fire use incidents. Because of the relative scarcity of structures or other sensitive values within portions of the Preserve, fire use incidents may often be adequately managed through aerial surveillance every few days; other incidents may demand the continuous presence of monitors or fire behavior analysts. The Agency Administrator will make final staffing decisions for all YUCH wildland fires managed fully or in part for resource benefit.

6. Monitoring for Fire Use Incidents

Monitoring procedures at YUCH will follow guidelines established by Preserve staff as well as the Alaska Fire Effects Working Group. Monitoring actions conducted at YUCH specifically in support of fire use incidents will whenever possible include measurement of fuel moisture levels for subterranean fuels (as represented by the subterranean fuel models of the Canadian Forest Fire Danger Rating System, for instance) as well as for traditional fine and heavy fuel models. (See Chapter XIII for a description of the Preserve's short and long-term fire monitoring program.)

7. Fire Use and Step-up Staffing

See Chapter IX Section B Unit 3 for step-up staffing.

8. Pre-determined Implementation Procedures for Wildland Fire Use at YUCH

The FMU parameters described within this plan (and adjusted annually) comprise the only pre-determined implementation procedures for wildland fire use at YUCH. Fire-use implementation outputs such as Maximum Manageable Area maps and Short-term Implementation Plans will be produced by the YUCH Fire Management Officer as needed, and provided to the Agency Administrator.

9. Incident-Specific Implementation Procedures for Wildland Fire Use at YUCH

Wildland Fire Implementation Plan
Completion of the Wildland Fire Implementation Plan entails as many as three distinct stages, depending on the nature and complexity of the incident. **Stage I** of the **WFIP** is triggered by any wildland fire detection within the Preserve and consists of the decision-making components described above. For simple pre-planned responses, these components alone will satisfy the WFIP process.

Any implementation of *wildland fire use* at YUCH, whether as a pre-planned action or through selection by the Agency Administrator, will trigger **WFIP Stage II**. This stage provides managers with the information needed to continue managing an incident for resource benefit. Stage II entails the prediction of direction, intensity, and rate of fire spread, as well as the specification of necessary short-term actions. Stage II also involves the initiation of periodic re-assessment of the incident's suitability for fire use and of the possible need for long-term management actions.

The Stage II periodic re-assessment component may prompt the Agency Administrator to initiate **WFIP Stage III.** This stage provides the necessary information and planning for more complex instances of wildland fire for resource benefit. Stage III results in the definition of a Maximum Manageable Area and the planning and documentation of the actions needed to strengthen and defend the MMA.

The general implementation path for wildland fire use at YUCH is shown in figure 8; specific responsibilities for components of WFIP Stages II and III are outlined in figures 9 and 10.

Figure 8: **Implementation Paths for Wildland Fire Use**

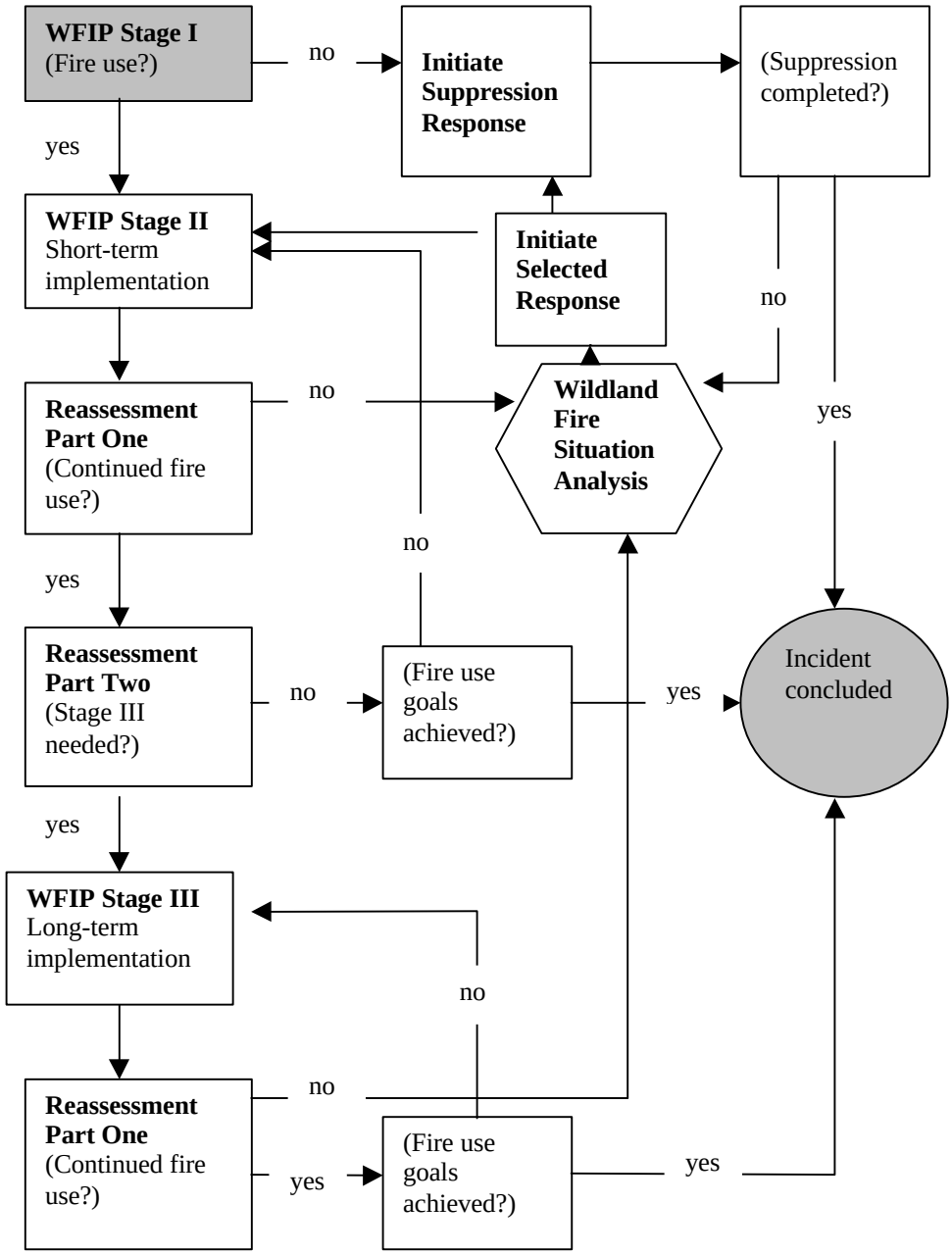


Figure 9: **Stage II WFIP Components (Wildland Fire Use)**

Component	**Input**	**Completion timeframe**	**Minimum Required Output**
Short-Term Fire Behavior Prediction	BEHAVE/FBP system	Within 24 hours of Stage I completion	BEHAVE/FBP runs
Risk Assessment	Relative Risk chart, FARSITE (if available)		Relative Risk chart output
Short-Term Implementation Actions	Staff input, behavior predictions, risk assessments, overall objectives, etc.		Short-term Implementation Action sheet **signed by Agency Administrator** (see appendix G)
Complexity Analysis	Staff input		Completed Wildland and Prescribed Fire Complexity Worksheet
Periodic Assessment Part One: Re-Validation	Stage I and II documents, Staff input	*Completed* ASAP after Stage I completion; *reviewed and affirmed* on specified frequency thereafter, unless "yes" response triggers completion of new sheet	Completed Re-validation sheet(s) (initial sheet plus any additional sheets triggered by "yes" responses) (see appendix G)
Periodic Assessment Part Two: Stage III Need Assessment Chart	Stage I and II documents, Staff input	Initiated ASAP after Stage I completion and repeated on specified frequency	Stage III Needs Assessment chart output (see appendix G)
Periodic Assessment signature page	Re-validation sheet; Stage III Need Assessment chart	Initiated ASAP after Stage I completion and repeated on specified frequency	Periodic Assessment signature page **signed by Agency Administrator**

Figure 10: **Stage III WFIP Components for Wildland Fire Use**

Component	Input	Completion timeframe	Minimum Required Output
MMA Definition	Staff negotiated; developed through consideration of objectives, maps, on-the-ground evaluation, aerial observation, monitoring, etc.	Within 24 hours of Stage II completion (unless FARSITE or other assessment process requires more time.)	MMA component of Long-term Implementation Action sheet (map and acreage)
Fire Behavior Predictions	BEHAVE/FBP, RERAP, and/or FARSITE		Behavior prediction program runs
Long-Term Risk Assessment	BEHAVE/FBP, RERAP, and/or FARSITE.		Risk Assessment component of Long-term Implementation Action sheet
Long-Term Implementation Actions	Staff input, behavior predictions, risk assessments, overall objectives, etc.		Long-term Implementation Action sheet **signed by Agency Administrator**
Periodic Assessment: Re-Validation	Stage I, II, & III documents, staff input	*Completed* ASAP after Stage I completion; *reviewed and affirmed* on specified frequency thereafter, unless response change triggers new completion	Completed Re-validation sheet(s) (initial sheet plus any additional sheets triggered by "yes" responses)
Periodic Assessment signature page	Re-validation sheet; Stage III Need Assessment chart	Initiated ASAP after Stage I completion and repeated on specified frequency	Periodic Assessment signature page **signed by Agency Administrator**

Wildland Fire Situation Analysis

The Wildland Fire Situation Analysis (WFSA) is the decision-making process used by the Agency Administrator to analyze an escalating wildland fire management situation and to document decisions; the Agency Administrator uses the WFSA to explain the situation, list management constraints and objectives, compare multiple strategic wildland fire management alternatives, evaluate expected effects of alternatives, select the preferred alternative, and above all, document the resulting decision. Preparation of the WFSA is triggered in several ways, including the occurrence of fire behavior beyond the capabilities of suppression actions or of prescribed fire operations. ***In the case of wildland fire use, the WFSA is produced when the Agency Administrator determines through periodic reassessment that resources are inadequate to accomplish fire use objectives*** (see figure 8, above).

Whereas the previously used Escaped Fire Situation Analysis allowed only the analysis of suppression alternatives, the recently developed WFSA can, in selected situations, be used to analyze alternatives aimed simultaneously at both resource benefit *and* protection.

The WFSA consists of seven sections, including a daily assessment sheet. Various sections require the signature of the Agency Administrator or the Incident Commander, the Agency Administrator, however, is ultimately responsible for completion of the WFSA. A full set of Wildland Fire Situation Analysis forms is available on the internet in the Wildland Fire Policy Implementation Guidelines, as follows: Go to **fire.nifc.nps.gov/fire/policy/fedfire** and click on **appendix**.

10. Funding/Fiscal Tracking

The Preserve FMO will work with the regional FMO to remain current on funding sources and procedures and to ensure that appropriate budget accounts are utilized on YUCH incidents. Guidelines for funding and financial tracking of fire management programs and activities for individual parks are contained within Reference Manual-18. (On the internet go to **fire.nifc.nps.gov/fire/policy/rm18/index.htm**; click on **table of contents**, then click **fire financial program**.)

11. Permanent Project Records for Wildland Fire Use

The Fire Management Officer will ensure that a complete project record will be produced and retained for each wildland fire use incident at the Preserve. Each record will contain the following items:

- All approved planning documents guiding management options (e.g. WFIP and WFSA components).
- Summary of monitoring activities, including monitoring schedule; individual monitoring reports and findings.
- Funding codes and cost accounting.
- Project maps.
- Other information as appropriate (e.g. photo points).

12. Information and Interpretation for Wildland Fire Use

The information and interpretation component of the Preserve's fire management program is specifically addressed in Chapter XV. The following objectives, however, pertain directly to wildland fire use:

- When extended wildland fire use incidents are likely to be visible to visitors, Preserve personnel will prepare and distribute handouts explaining the YUCH fire

management program, the nature of the specific incident, and the desirability of preserving the area's natural fire regime.

- An attempt will be made to educate all YUCH employees about local fire ecology, the Preserve's fire management objectives, and in-progress fire-use incidents.

- When fire use incidents occur near frequently used locations, interpreters or other Preserve employees will make periodic visits to answer questions.

13. Potential Impact of Wildland Fire Use Implementation

In managing the use of wildland fire for resource benefit, YUCH administrators will take into account both the short and long-term impacts of any such activity upon all facets of Preserve use, including subsistence activity. Although some local residents have expressed concern over the impact of wildland fire upon subsistence hunting and/or trapping operations at YUCH, the preservation of the area's fire regime is important to the long-term viability of the Preserve's wildlife populations. Nonetheless, the Agency Administrator will in all cases consider the short-term impact of fire-use actions on subsistence activities.

B. Wildland Fire Suppression

1. Range of Potential Fire Behavior

Fire behavior in the Preserve can range from creeping subterranean fire in tundra to fast moving ground or canopy fire in surface fuels or spruce stands. For more detailed discussion refer to Fuel Characteristics and Fire Behavior (Chapter VI Section B).

2. Preparedness Actions

a. Fire prevention activities

- Fire prevention and wildland fire use will be discussed at selected staff safety meetings in the early spring to ensure that all personnel are aware of concerns and familiar with procedures for wildland fire, fire use, and prescribed fire.

- A brochure discussing campfire use will be included in all correspondence requesting information about the Preserve.

- Preserve personnel will participate in fire prevention and safety fairs at local schools so that the general public is aware of the importance of fire prevention.

- During periods of high danger, the general public and Preserve visitors will be informed of conditions through press releases, interpretive media and, if necessary, the posting of signs at Preserve headquarters, public-use cabins, etc.

b. Staff readiness:

The FMO will oversee the annual certification, training, and evaluation of YUCH personnel involved in fire management activities, in accordance with the timetable shown in figure 11:

Figure 11: **Staff Readiness Schedule**

January-February • Triennial physical exams completed (for returning employees).
March-April • Fire qualifications updated and entered into SAC.
May • Annual wildland fire refresher training for all red-carded personnel. • Annual pack tests administered, as per NPS-18 standards. • NWCG courses in Fairbanks for firecrew members.
September • Critique fire season (all fire management activities). • Evaluate individual performance of Preserve staff; correct deficiencies and nominate personnel for specific training courses.

c. Program readiness

The FMO will ensure the accomplishment of the following objectives each winter:

- Inventory fire equipment; order needed supplies and update inventory list.
- Review and confirm established Preserve and/or Regional procedures for utilizing fire-related accounts.
- Review and adjust FMU parameters (i.e. AIWFMP protection categories).
- Review and revise YUCH Fire Management Plan.

3. Step-up Staffing and Pre-Attack Plan

The FMO and fire staff is responsible for Yukon-Charley Rivers, Wrangell-St. Elias, and Gates of the Arctic National Parks and Preserves. Therefore, the following matrices will be used to assist in the pre-positioning of these personnel.

Figure 12. **Complexity Level**

	Current Fires		
Fire Indices	0-3 fires	3-6 fires	6+ fires
FFMC=80-85	LOW COMPLEXITY LEVEL	LOW COMPLEXITY LEVEL	MODERATE COMPLEXITY LEVEL
FFMC=85-89	LOW COMPLEXITY LEVEL	MODERATE COMPLEXITY LEVEL	HIGH COMPLEXITY LEVEL
FFMC=90+	MODERATE COMPLEXITY LEVEL	HIGH COMPLEXITY LEVEL	HIGH COMPLEXITY LEVEL

Definitions:
Number of Current Fires – A measure of complexity due to the number of fires within the park regardless of the FMU that is burning. This is also an indication of suppression or monitoring resource shortages.

FFMC – the Fine Fuel Moisture Content (FFMC) is a numerical rating of the moisture content of litter and other cured fine fuels (needles, mosses, twigs less than one cm in diameter). The FFMC is representative of the top litter layer 1-2 cm deep. FFMC fuels are affected by temperature, wind speed, relative humidity, and rain. FFMC values change rapidly and reflect the weather conditions that have occurred over the past three days. The FFMC is used to indicate ease of ignition, or ignition probability with the scale ranging from 0-99. Of importance is the fact that fire starts increase exponentially with an increase in FFMC values at the high end of the scale.

Complexity Level –

Low: Few fires within the Preserve and relatively abundant resources available. May be early or late in the year and fire behavior is reduced and control and extinguishment are relatively easy.

Moderate: Several fires within the Preserve and resources becoming scarce within the Upper Yukon Zone. Fires are difficult to extinguish and carryover fires are occurring.

High: Many fires within the Preserve and resources are becoming scarce within the state. Fires are difficult to control and extinguish with multiple carryover fires occurring.

Figure 13: **Preparedness Levels**

Values at Risk			
Complexity	Low	Moderate	High
Low	Low Preparedness Level	Low Preparedness Level	Moderate Preparedness Level
Moderate	Low Preparedness Level	Moderate Preparedness Level	High Preparedness Level
High	Moderate Preparedness Level	High Preparedness Level	High Preparedness Level

Values at Risk – These values include life and property including historically significant sites. The low values at risk are those under non-sensitive protection. The medium values at risk are those under full protection. The high values at risk include sites that are under critical protection (see Chapter XVI Section A. Protection of Sensitive Resources for criteria for protection levels).

Preparedness Levels –

Low: The contract helicopter and two fire staff will be available within the state for response. The weather, fire behavior codes, and fire weather indices will be monitored daily. Either AFS or Preserve fire staff will fly surveillance flights at a minimum of once per week.

Medium: The contract helicopter and two fire staff will be available within the park. The weather, fire behavior codes, and fire weather indices will be monitored daily. AFS will be contacted daily for tactical and resource updates. Either AFS or Preserve fire staff will fly surveillance flights at a minimum of every other day.

High: The contract helicopter, two fire staff, and the FMO will be available within the park. The weather, fire behavior codes, and fire weather indices will be monitored daily. AFS will be contacted daily for tactical and resource updates. The FMO will contact the Preserve Interpretive Specialist on a daily basis to provide information updates. Either AFS or Preserve fire staff will fly surveillance flights staff every day.

4. Minimum Impact Suppression Tactics

It is the policy of the National Park Service that all fire management activities will be executed using minimum impact suppression guidelines. Accordingly, the following constraints apply to all fire management activity at Yukon-Charley Rivers National Preserve:

- Use water rather than retardant whenever possible; when retardant is necessary, use fugitives if available and avoid as much as possible the use of any retardant in or around lakes or marshes.

- Use cold-trailing or wet-lining techniques when feasible.

- Utilize soaker hoses or foggers in mop-up; avoid "boring" or other scaring hydraulic actions.

- Dozers and other heavy equipment will be used only with the approval of the Superintendent (or delegate), except in life-threatening circumstances.

- Minimize the falling of trees and the cutting of shrubs; limb vegetation adjacent to fireline only as needed to prevent additional fire spread.

5. Rehabilitation

Firelines will be rehabilitated to stabilize the burn area and to mitigate the effects of suppression activities. The Agency Administrator will ensure that the Incident Commander consults with natural resource managers as needed, regarding any specific rehabilitation needs. When possible, burned areas will be allowed to regenerate naturally.

6. Completion of Records and Reports

The general pathway for documentation of wildland suppression incidents is shown in figure 6 (Chapter IX, Section A). For each suppression incident the Preserve Fire Management Officer will be responsible for the completion of some or all of the following items, as indicated.

a. Wildland Fire Implementation Plan

The FMO will ensure that a Wildland Fire Implementation Plan is enacted for every wildland fire at YUCH. For default suppression responses within the Preserve, the WFIP is satisfied by the Upper Yukon zone dispatch office through its recording of initial detection and determination of the incident location. For alternative suppression responses (e.g. suppression in the Limited Protection FMU), the WFIP is completed with the Agency Administrator's preparation of a Fire Situation report and Decision Criteria checklist. Documentation for suppression incident stemming from an escalating *fire use* response will include Stage II or III components as well as a Wildland Fire Situation Analysis, as discussed below. (See Chapter IX, Section A, "Wildland Fire Use," for further discussion of the WFIP).

b. Wildland Fire Situation Analysis

Preparation of a Wildland Fire Situation Analysis is required whenever an initial suppression response is unsuccessful or a fire-use response is found through the re-assessment process to be insufficient for the accomplishment of management objectives. In either case the Agency Administrator is responsible for ensuring that all WFSA components are completed. (See Chapter IX Section A, "Wildland Fire Use," for further discussion of the WFSA.)

c. DI-1202

The 1202 is the standard format for submission of fire data into the Department of Interior Shared Applications Computing System (SACS). On YUCH incidents an initial 1202 will be prepared by the Incident Commander and submitted by the Alaska Fire Service. The YUCH Fire Management Officer, however, will ensure the preparation and entry of an additional 1202 on behalf of the Preserve. The following items are pertinent to the production of the 1202; the FMO will ensure that these items are retained and filed at the Yukon-Charley/Gates of the Arctic office in Fairbanks.

- Fire number (obtained from Upper Yukon zone dispatch)
- Copy of WFIP (all stages)
- Copy of WFSA (for unsuccessful initial attack or fire use operations)
- Resource order forms (NFES 1470)
- Equipment rental or purchase receipts
- Accident and/or injury reports
- Personnel lists (including Emergency Time slips)
- All weather data reports and records
- Situation maps
- Rehabilitation plan

X. PRESCRIBED FIRE MANAGEMENT

A. Long-term Scope

Though the Preserve presently has no plans to use prescribed fire, it may be implemented in the future for the accomplishment of certain resource management goals. Because of the relatively undisturbed nature of the Yukon-Charley fire ecology, the Preserve does not anticipate implementing landscape-scale burning for the purpose of restoring or preserving the area's indigenous ecosystems. The Preserve may, however, use prescribed fire for the purposes of restoring historical conditions at selected sites or for reducing hazard fuel loads in the vicinity of valued resources. These uses would facilitate the accomplishment of goals identified in the Preserve's Resource Management Plan, particularly the stabilization and restoration of historical sites and structures associated with the Yukon gold rush.

B. Prescribed Fire Planning

1. Annual planning

Any implementation of prescribed fire within the Preserve will be predicated upon an annual planning session attended by the FMO, the Chief of Operations, the Chief of Resource Management, and any other interested parties. Topics covered in this meeting may include the determination of prescribed burn units; the establishment of prescribed fire objectives; the presence and protection of sensitive resources; the mitigation of smoke management problems; determination of prescriptions and/or burning windows;

and the impact of the proposed action on the full spectrum of Preserve uses, including subsistence hunting and trapping.

2. Individual plans

Each implementation of prescribed fire will follow a specific plan prepared by the FMO in accordance with the parameters outlined in Chapter Four of the Wildland and Prescribed Fire Management Policy Implementation Guidelines, available on the internet as follows: go to **fire.nifc.nps.gov/fire/policy/fedfire**; click **Chapter Four**, then click **Prescribed Fire Planning**. The written plan will be reviewed by the State Historical Preservation Officer for compliance with the National Historic Preservation Act. It will then be reviewed and approved by the Superintendent, in consultation with the Chief of Resource Management. Final authority for the *implementation* of the prescribed fire plan rests with the designated Burn Boss.

3. Staffing

All prescribed fires at YUCH will be supervised by a Prescribed Fire Burn Boss (RXB2, RXB1) certified by taskbook for the conduction of prescribed fires in appropriate fuel types and at the appropriate level of complexity. Burn bosses for YUCH prescribed fires may be obtained from other agencies, provided that designated individuals are certified as such. Prescribed fires at YUCH will be staffed exclusively by certified wildland firefighters. Specific operational positions will be filled in accordance with national requirements for training and experience as described in Chapter 6 of the Wildland Fire Policy Implementation Guidelines. The amount and specific nature of resources required for prescribed fire operations will be determined initially by the Preserve FMO through the preparation of the prescribed fire plan; the designated burn boss, however, is responsible for the tactical implementation of the plan and as such must confirm the adequacy of planned staffing levels prior to ignition.

4. Monitoring

All prescribed fires will be monitored on both a short and long term basis, in order to provide the following types of information: 1) **anticipated fire conditions** (including rate of spread, anticipated weather, threats to resources and/or safety, fuel load, etc.); 2) **observed ambient conditions** (including topographic influences, current weather conditions, drought index, fire and smoke behavior, etc.); and 3) **assessment of post-fire effects** (including fuel reduction, vegetative change, etc.). Collection of all three types of information is necessary in order to help ensure adherence to prescription, accomplishment of management objectives, and establishment of baseline data. Complexity, frequency, and duration of monitoring activity will be dictated by burn objectives and will be specified by the prescribed fire plan. Objectives and guidelines for monitoring procedures at YUCH are further specified in Chapter XIII.

5. Documentation

The YUCH Fire Management Officer will ensure that each prescribed fire is documented with the following items:

- Approved prescribed fire plan.
- Environmental and cultural compliance documents.
- Map of project and surrounding area.
- Monitoring data (including weather, fire behavior, and fire effects observations).
- Smoke dispersal information.
- DI-1202

6. Reporting Requirements

The FMO will report the intent to conduct a prescribed fire via SACS and/or phone to the ARO Fire Management Office by 3:00 p.m. the day before a prescribed fire. The FMO will also notify the Upper Yukon zone dispatch and the Alaska Interagency Coordination Center the day prior to the burn and again immediately upon its completion.

7. Prescribed Fire Critiques

Immediately following the prescribed burn the Burn Boss will conduct a review of the prescribed burn operation. The review will be attended by the overhead staff, crewmembers, Chief of Operations, Resource Specialists, and the Fire Management Officer. Items for discussion will include safety, accomplishment of objectives, fire behavior and effects, and effectiveness of operations.

XI. AIR QUALITY/SMOKE MANAGEMENT

All fire management actions at Yukon-Charley Rivers National Preserve will be conducted in full compliance with local, state, and interstate air pollution control regulations as required by the Clean Air Act, 42 U.S.C. 7418. The Alaska Department of Environmental Conservation issues open burning permits; no local or interstate air pollution control regulations exist in Alaska. A Simple Approach Smoke Estimation Model (SASEM) analysis (or equivalent) will be performed prior to all prescribed fires and will be utilized as needed during wildland fires (as determined by the Preserve FMO). During all fire use activities smoke will be monitored for trajectory, mixing height, and impact to overall air quality.

XII. FIRE RESEARCH

The implementation of the YUCH Fire Management Plan will not be predicated upon the prior completion of fire research. Whenever possible, however, fire management actions at the Preserve will incorporate and facilitate research activities designed to increase understanding of local fire ecology and effects. The range of appropriate research activities is discussed in Chapter XIII.

XIII. MONITORING

As already indicated, wildland fire comprises an integral component of the Preserve's wildlife and plant communities. Accordingly, the Preserve seeks to develop a monitoring program which will help managers to better understand the relationship between fire and other components of the area's ecosystem. Goals for present and future monitoring practices include the following:

- Facilitate the prediction of fire behavior and fire effects at Yukon-Charley through the establishment of vegetation and/or soils plots in front of the line of fire and the evaluation of intensity and pattern of fire after burn-over.

- Determine the applicability and effectiveness of the Canadian Forest Fire Index to Yukon-Charley monitoring operations.

- Determine the effects of fire on known archeological sites and cultural landscapes.

- Establish snow courses in association with RAWS sites to evaluate effect of snow levels on fire behavior; utilize RAWS sites to determine duff moisture content during fire season in order to better predict fire intensity.

- Calibrate existing model or develop a model for predicting fire spread specific to hardwood areas.

- Determine the cumulative effects of fire on subsistence activities dependent upon wildlife distributions.

Specific objectives and criteria for monitoring activities are discussed within the context of Prescribed Fire Use in Chapter X, section B.4. These objectives and criteria will generally apply to the monitoring of Wildland Fire Use incidents, as well.

XIV. PUBLIC SAFETY

A. Safety Issues at YUCH

Fire management safety concerns at Yukon-Charley include threats posed by fire and smoke to visitors, local residents, employees and wildland firefighters.

B. Mitigation

1. Operational safety

All personnel engaged in fire management activities within the preserve will remain aware of the standard fire orders and "situations that shout watch out"; each employee will work to ensure constant implementation of LCES (effective use of lookouts, communication, escape routes, and safety zones).

2. Visitor safety

Visitor use will not be allowed near fire perimeters. An attempt will be made to inform all visitors of any known wildland fire activity within the Preserve, and signs will be posted on nearby roads and departure points if smoke produced during wildland and prescribed fire creates a safety concern. The Superintendent may initiate a temporary closure of some or all of the Preserve if large or erratic fire behavior endangers visitor and employee safety to a significant degree. Closures may also apply to airspace.

3. Evacuation procedures

The Alaska Fire Service has developed standard procedures for the evacuation of personnel and/or public due to risks posed by fire and/or smoke. Either the YUCH Superintendent or the YUCH Agency Administrator may request the AFS to implement evacuation procedures for the Preserve or for adjacent communities. (A memo explaining these procedures is contained in appendix F).

XV. PUBLIC INFORMATION AND EDUCATION

The following steps will be taken to facilitate public awareness of YUCH fire management policies, objectives, and actions:

- The Fire Management Officer and Interpretive Specialist will work together to effectively interpret the fire management program.

- The ecological basis of the Fire Management Plan will be incorporated into park brochures, wayside exhibits, and bulletin boards.

- The fire management program will be featured in interpretive walks, talks, slide shows, and off-site programs.

- During on-going fires, articles and press releases will be written and released to local media in a timely fashion.

- When fire use incidents are likely to be visible to visitors, handouts will be prepared and disseminated. These will explain the benefits of carefully controlled fire and the Preserve's fire management program. Interpreters may be stationed near ongoing fires to answer questions. Local media may be periodically invited to observe prescribed fires.

- The Fire Management Officer will educate employees at YUCH about the fire management program and the status of on-going fires.

XVI. PROTECTION OF SENSITIVE RESOURCES

A. Archeological/Cultural/Historic Resources

If historic fire activity is any indication, one may presume that wildland fire has, at some point, affected virtually every prehistoric site within the preserve, and perhaps even many of the historic sites. Wildland fire effects on the types of materials commonly found in these sites will tend to be minimal. Thus, the Fire Management Plan will have no immediate impact on the majority of archeological and non-structural historical resources within the preserve.

Where wildland fire activity threatens cultural sites which have been designated Full or Critical protection status, the FMO will immediately contact the park Cultural Resource Specialist for consultation, particularly if ground disturbing activities are required for protection or fire suppression. The FMO will also contact the Cultural Resource Specialist if fire suppression activities for the protection of inholdings might affect sites on surrounding preserve lands. Proactive measures will be taken to protect select structures within the preserve. The following discussion provides background and criteria associated with the selection process.

Because the protection of every known cabin site within the preserve is not feasible, criteria have been established to provide cultural resource specialists and park management with a sound methodology for determining which key sites will be afforded special protections from wildland fire. The criteria are as follows and may be updated or improved upon should new information come to light.

CRITICAL:

Definition: Fires occurring immediately threatening this designation will receive highest priority for protection from wildland fires by immediate and continuing aggressive actions dependent upon the availability of suppression resources.
Objectives: Protect human life, inhabited property and designated physical developments without compromising fire fighter safety. Protection of the aforementioned elements is the primary objective, not control of the wildland fire.
Recommended criteria:
1. Year-round residence.
2. Structural resources designated as National Historic Landmarks. (At present, the preserve contains no National Historic Landmark properties.)

FULL:

Definition: Fires occurring immediately threatening this designation will receive aggressive initial attack dependent upon the availability of suppression resources.
Objectives: Protect sites designated as Full management from the spread of wildland fires burning in a lower priority management option. Minimize damage from wildland fires to the resources identified for protection commensurate with values at risk.
Recommended criteria:
1. Structural resources designated or eligible for inclusion on the National Register of Historic Places.
2. Structural resources that have received NPS funds for rehabilitation or restoration.
3. Structural resources vital to the NPS mission i.e. administrative sites.
4. Structural resources with a high degree of structural integrity which are also representative of historic themes established by the Preserve.

NON-SENSITIVE:

Definition: Fires occurring immediately threatening this designation will be allowed to burn under the influence of natural forces within predetermined areas while continuing protection of human life. Generally this designation receives the lowest priority for allocations of initial attack resources.
Objectives: Within land manager policy constraints, accomplish land and resource management objectives through the use of wildland fire. Reduce overall suppression costs through minimum resource commitment without compromising firefighter safety.
Recommended criteria:
1. Trespass structures.
2. Abandoned structures that are not eligible for inclusion on the National Register of Historic Places.

NON-SENSITIVE/DEFENSIBLE SPACE:

Definition: Fires occurring immediately threatening this designation will be allowed to burn under the influence of natural forces within predetermined areas while continuing protection of human life. Defensible space will be built prior to any fire starts.

Objectives: Within land manager policy constraints, accomplish land and resource management objectives through the use of wildland fire. Allow protection of structural resources using minimum tool and ensuring firefighter safety.

Recommended criteria:

1. Structural resources considered important to the historical theme of the Preserve but not vital.
2. Structural resources being assessed for eligibility into the National Register of Historic Places.

Undetermined National Register Status Sites

According to the preserve's current Cabin Database, there are 110 sites containing structural components that are yet to be evaluated for National Register eligibility. Visiting, documenting, and researching each of these 110 sites will be a monumental undertaking, particularly for a small staff of two to three Cultural Resource Specialists. In addition, it is likely that several of the sites reported to be in fair or good condition in the past are now completely overgrown, collapsed, or washed away by periodic riverbank flooding.

In order to approach the task of assessing each of these 110 sites for eligibility, cultural resource staff have proposed working together with the FMO to determine areas in which conditions are most ripe for wildland fire activity. This information will be used to formulate a prioritized plan for systematic inventory and documentation of known, poorly documented sites, with the most threatened sites at the top of the list. Site proximity to areas of high human impact, in particular the Charley and Yukon River corridors will also factor in prioritization for site documentation and assessment. Coincidentally, both the Charley and Yukon Rivers contain the majority of complete and near-complete structures within the preserve. Any newly discovered sites will be incorporated into the assessment process.

Some locational data for cabin and other sites with structural components is rather dubious, making it difficult to locate sites and gather data. As yet, the time frame necessary for completion of this documentation and assessment project has not been determined and will depend greatly on the ability to access and locate sites.

Cabin Management Plan

The Preserve is currently in the process of developing a Cabin Management Plan which will address a variety of concerns related to cabin sites. Utilizing existing data, cultural resource staff will outline documentation and survey needs within the preserve. Site

eligibility for the National Register will be researched and nominations sent to the State Historic Preservation Officer.

In addition, recommendations for rehabilitation and stabilization projects will be made to the National Park Service Alaska Region Historian and Historic Architect. These recommendations will be based on careful consideration of site significance, condition, and relationship to established park historic themes. As the Cabin Management Plan develops any necessary alterations or revisions will be made to the Fire Management Plan.

B. Sensitive Natural Resources

No threatened or endangered animal or plant species are known to be present at Yukon-Charley.

Certain fire suppression activities could, however, pose a threat to fragile soil layers and to other ecosystem components. This type of risk will be mitigated through the use of minimum impact suppression tactics, as specified by NPS policy (see Chapter IX, section B.4.).

C. Developments and Inholdings

Structures within the Preserve will be assigned to an appropriate AIWFMP protection category by the Preserve staff, as directed by the Recommended Criteria for Fire Protection of Structural Resources Within YUCH (Appendix E.4).

XVII. FIRE CRITIQUES AND ANNUAL PLAN REVIEW

A. Preserve-level Incident Reviews

All wildland fire incidents within the Preserve will be reviewed; prescribed fires implemented within the Preserve will be reviewed as appropriate. The nature and scope of such reviews will vary in accordance with the complexity of the incident at hand, as follows:

Single-shift incidents:
For incidents within the Preserve lasting no more than one operational period, a critique will be conducted as quickly as practical upon completion of control and mop-up. As many personnel involved in the incident as possible will participate in the critique; the Incident Commander or Burn Boss will relay any special concerns or problems identified during the critique to the Chief of Operations.

Low-complexity multi-shift incidents:
For simple incidents lasting longer than one operational period, a critique will be conducted within three days of completion of mop-up by the Chief of Operations, the

Chief of Resource Management, the Fire Management Officer, and any others with special knowledge of or interest in the incident in question. The objective of the critique will be to determine the effectiveness of the YUCH fire management program; procedures for such critiques are outlined in NPS-18, Section III, Chapter 9, Exhibit 2.

Higher-complexity multi-shift incidents:
The Preserve Superintendent will conduct a close-out meeting with the Incident Management Team at the conclusion of each type I or II incident to ensure the successful transition of the incident back to the Preserve and to identity any incomplete fire business. Refer to Chapter 13, Exhibit 1 of Reference Manual 18 for a sample.

All on-going incidents:
"Hotline" reviews will be used to examine the progress of on-going fire incidents, regardless of duration, size, or complexity. This type of review will provide confirmation of the decisions being made daily in the WFSA/WFIP and/or help determine where the decision process has been faulty. Hotline reviews of YUCH incidents will be conducted by the Preserve FMO or by the Agency Administrator in conjunction with the designated Incident Commander. Hotline reviews don't follow pre-established procedures; results, however, will be recorded in fire reports.

B. Regional and National-level Incident Reviews

A regional or national-level incident review may be conducted under any of the following circumstances:

- Fire crosses the Preserve's boundaries into another jurisdiction without the approval of the landowner or agency.
- An incident results in adverse media attention.
- An incident involves death, serious injury or significant property damage, or exhibits potential to do so.
- An incident results in controversy involving another agency.

Refer to Chapter 13, Reference Manual 18 for distinction between regional and national-level reviews and for examples of each.

C. Entrapment and Fire Shelter Deployment Reviews

Fire shelter deployment is defined as the use of a fire shelter for its intended purpose in any situation other than training. All entrapments and fire shelter deployments will be reported to the regional Fire Management Officer, who will in turn develop a review team in cooperation with the Fire Management Program Center. The team leader will obtain reporting information from the YUCH Superintendent, and the review will be conducted in accordance with the guidelines presented in Chapter 3 of Reference Manual 18 (see exhibits 4 and 5).

D. Program and Plan Reviews

An informal fire management review will be conducted annually to evaluate current procedures and to identify any needed changes to the Preserve's FMP. A formal internal fire management review will be conducted every five years.

Minor changes to the YUCH Fire Management Plan (including minor procedural changes, deletions, corrections, additions to appendices, etc.) may be made with the authority of the Preserve FMO. The Superintendent, however, must approve significant changes to the body of the Fire Management Plan.

XVIII. CONSULTATION AND COORDINATION

The following individuals were consulted in the preparation of this plan:

Brad Cella, Fire Management Officer, National Park Service, Alaska Region

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Kato Howard, Fuels Management Specialist, Alaska Fire Service, Upper Yukon Zone

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Glenn Yankus, Environmental Protection Specialist, National Park Service, Alaska Support Office

Tom Zimmerman, Fire Science/Ecology Manager, National Park Service, National Interagency Fire Center

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B. Definitions

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1. **Wildland Fire Implementation Plan**
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3. **Long-Term Implementation Action**

References

The following sources are either cited within the Fire Management Plan, were consulted during its preparation, or are otherwise pertinent to the management concerns outlined within the plan.

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Alaska Wildland Fire Coordinating Group. 1998. Alaska Interagency Wildland Fire Management Plan.

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Definitions

Agency Administrator: An incident-specific position filled by any qualified YUCH staff member as designated by the Preserve FMO or Chief of Operations. The Agency Administrator represents the YUCH Superintendent and works with the incident command team to ensure the compliance of wildland fire operations with Preserve and NPS resource management policy.

Appropriate Management Response (AMR): Any wildland fire action selected and developed through either the initial decision-making process (i.e. WFIP stage I) or a WFSA. AMRs may be directed toward suppression or resource benefit, depending on predetermined parameters and incident-specific conditions.

BEHAVE: A system of interactive computer programs used for formulating fuel models based and predicting fire behavior.

Director's Order 18 (DO-18): A comprehensive statement of National Park Service wildland fire management policy.

Extended Attack: Any wildland fire suppression action lasting beyond one operational period.

Fire Management Officer (FMO): A permanent position with responsibility for the planning and coordination of fire management programs. YUCH is served by a co-lateral duty area FMO stationed at Wrangell-St. Elias National Park and Preserve.

Fuel Loading: Amount of live and dead organic matter present at a particular site.

Fuel Model: A simulated fuel complex based on representative descriptors; used to estimate rate of spread and other fire behavior indices.

Initial Attack: A wildland fire suppression action lasting no more than one operational period.

Prescribed Fire Use: Planned implementation of fire within a pre-determined area and under pre-determined conditions, for the accomplishment of resource management objectives and/or hazard fuel mitigation.

Reference Manual 18 (RM-18): A detailed set of guidelines for the operational implementation of the wildland fire management policies specified in DO-18. RM-18 consists of a continuously evolving on-line document.

Maximum Manageable Area (MMA): A geographical parameter established during the WFIP process and indicating the size which a fire use incident may grow to before triggering a WFSA.

Wildland Fire: Any occurrence of wildland fire not planned and ignited by management.

Wildland Fire Implementation Process (WFIP): A multi-stage decision-making process triggered by the detection of any wildland fire. Initial WFIP components help managers determine initial strategies (e.g. fire use or suppression); subsequent components document continued viability of fire use.

Wildland Fire Situation Analysis (WFSA): A standardized decision-making process triggered when an escalating incident renders present management actions inadequate. WFSA components provide a means of evaluating alternative strategies and serve to document decisions, actions, and results.

Wildland Fire Suppression: Any management action based on protection goals rather than resource management concerns.

Wildland Fire Use: Any management action implemented primarily for the accomplishment of resource objectives (including the preservation of fire in its natural role and/or the reduction of hazardous fuel loads). Also referred to as wildland fire use for resource benefit (WFURB).

DRAFT ENVIRONMENTAL ASSESSMENT

FIRE MANAGEMENT PLAN
FOR
YUKON-CHARLEY RIVERS NATIONAL PRESERVE

PREPARED BY

NATIONAL PARK SERVICE

YUKON-CHARLEY RIVERS NATIONAL PRESERVE

February 8, 2000

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DRAFT ENVIRONMENTAL ASSESSMENT

Fire Management Plan for Yukon-Charley Rivers National Preserve

I. INTRODUCTION

A. PURPOSE AND NEED

The National Park Service proposes implementing National Park Service Director's Order 18 (1998) by establishing a fire management plan for Yukon-Charley Rivers National Preserve. This fire management plan is a comprehensive document and outlines Yukon-Charley Rivers National Preserve fire management goals and describes the policies and actions by which these goals will be realized. The plan will formalize the fire management decision-making process and the procedures that have been in place for over 15 years, redefine fire management strategies, establish the park's fire management organization and responsibilities, and relate resource management goals to fire management strategies. With the implementation of the proposed action, fire management within Yukon-Charley Rivers National Preserve will remain status quo and the on-the-ground application of the fire management strategies will continue as in the past.

This plan is necessary for the management of wildland fire at Yukon-Charley Rivers National Preserve which is potentially complex. Fire poses a potential threat to life and property as well as cultural and historic resources in and around the Preserve. At the same time, however, fire has long been an integral component of the area's ecosystems and is critical for the maintenance of virtually all indigenous conditions, from plant and animal populations to soil and permafrost layers. Accordingly, the scope of the proposed action and other considered alternatives entails the planning and implementation of policies and practices flexible enough to allow the simultaneous pursuit of protection and resource management goals.

This environmental assessment (EA) has been prepared in accordance with the National Environmental Policy Act of 1969 and the regulations of the Council of Environmental Quality (40 CFR 1508.9). It evaluates the potential impacts to cultural and natural resource values which could result from implementing the Yukon-Charley Rivers National Preserve Fire Management Plan. The environmental assessment is intended to facilitate decision-making based on an understanding of the environmental consequences of the proposal and determine whether preparation of an environmental impact statement is required.

B. BACKGROUND

In 1983 the National Park Service cooperated with Bureau of Land Management, Alaska Department of Natural Resources, Alaska Department of Fish and Game, US Forest Service, US Fish and Wildlife Service, Bureau of Indian Affairs, and Native Regional and Village Corporations to produce an Interagency Fire Management Plan for the Fortymile Planning Area. This plan provided direction for fire management activity in Yukon-Charley Rivers National Preserve until 1998, when a variety of documents, including 13 local planning area Fire

Management Plans (FMP) of which the Fortymile Plan was one, were consolidated and approved as the **Alaska Interagency Wildland Fire Management Plan** (AIWFMP). Under the AIWFMP, fire protection needs are determined through annual land owner/manager reviews and lands are then placed under **critical**, **full**, **modified** or **limited** protection categories, with categorization based on presence and/or proximity of values to be protected as well as the resource management objectives of the pertinent land-management agency (see Figure 1 for description of categories). Each reported wildland fire is managed in accordance with the categorization of the sub-unit in which it occurs, with responses ranging from rapid and aggressive attack by all available forces in the case of fires detected in Critical Protection areas to periodic surveillance for certain fires detected in Limited Protection areas (see Figure 2 for map of Preserve units).

Protection Category	Intent	Policy
Critical	• Prioritization of suppression actions for wildland fires threatening human life, inhabited property, and/or other designated structures. • Complete protection of designated sites.	• Aggressive suppression of fires within or threatening designated areas. • Highest priority for available resources.
Full	• Protection of uninhabited cultural and historical sites, private property, and high-value natural resources.	• Aggressive suppression of fires within or threatening designated areas, depending upon availability of resources.
Modified	• Greater flexibility in selection of suppression strategies when chance of spread is high (e.g., indirect attack). • Reduced commitment of resources when risk is low. • Balancing of acres burned with suppression costs and with accomplishment of resource management objectives.	• Fires in designated areas receive initial attack depending on availability of resources, unless land manager chooses otherwise and documents with WFSA. • After designated **conversion date**, operational response to Modified protection zones is identical to that of Limited zones.
Limited	• Reduction of long-term costs and risks through reduced frequency of large fires. • Reduction of immediate suppression costs. • Facilitation of bio-diversity and ecological health	• Wildland fires allowed to burn within predetermined areas. • Continued protection of human life and site-specific values. • Surveillance.

Figure 1: Alaska Interagency Wildland Fire Management Plan Options

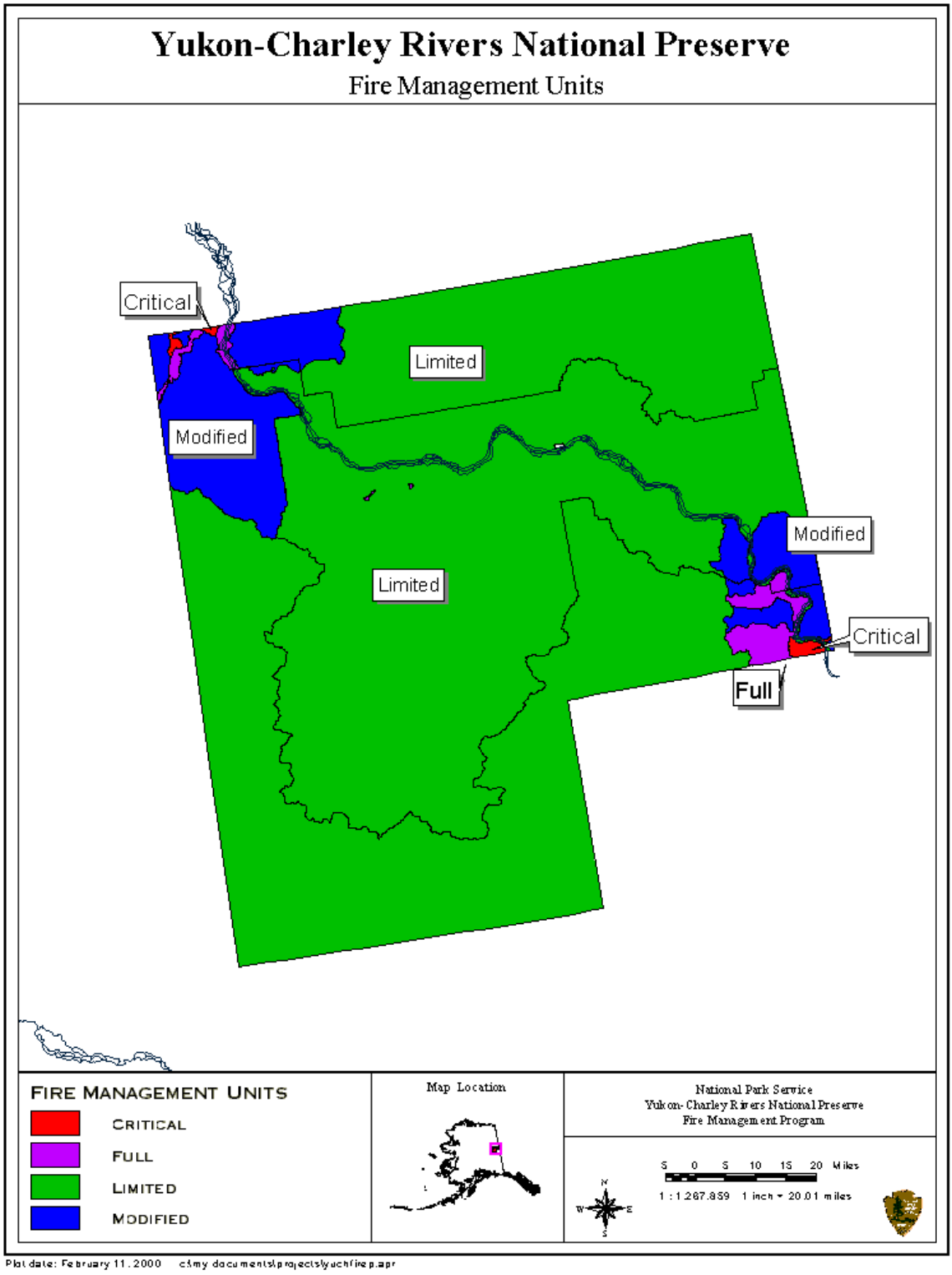

Figure 2: Fire Protection Boundaries

All of the alternatives discussed here, including the proposed action, would entail continued compliance with the AIWFMP while at the same time bringing the Preserve's fire management program into compliance with recently developed National Park Service directives. **NPS Director's Order 18** (1998) mandates a distinction between **prescribed fire**, defined as any fire planned and implemented by management, and **wildland fire**, defined as any unplanned ignition, whether human or natural. Wildland fire incidents, in turn, fall into two categories: **Wildland fire use** entails the management of certain unplanned ignitions for the achievement of management goals, including the reduction of dangerous and unnatural accumulations of burnable vegetation and the preservation of fire in its natural role. And **wildland fire suppression** entails a broad spectrum of actions aimed at protecting life, property, and sensitive resources while also ensuring firefighter safety, cost effectiveness, and minimal disturbance from suppression activities.

The Yukon-Charley Rivers National Preserve Resource Management Plan (1994) specifies three objectives directly relevant to the Preserve's fire management program: 1) the maintenance of natural processes, including fire, to the greatest degree possible while protecting human life, private property, cultural sites, critical habitat, and endangered species; 2) the minimization of human disturbances, such as the manipulation of habitat or wildlife populations, except in extreme cases; and 3) the stabilization and restoration of significant historical structures and districts. Each of the alternatives presented in this Environmental Assessment comprises a particular combination of the various management strategies permitted under NPS Director's Order 18. These alternatives have been evaluated for their ability to contribute to the accomplishment of the resource management objectives described above.

C. Impact Topics Addressed and Analyzed

Impact topics were identified to focus the analysis of alternatives on the most relevant subject matter and resources of concern. A brief rationale for each impact topic follows, as well as the reasons for dismissing specific topics from further analysis.

Vegetation and Bio-diversity. The National Environmental Policy Act (1969) requires analysis of impacts on all affected components of the ecosystem, including biotic communities of plants and animals. NPS Management Policies (1988) requires maintenance of these communities, including their natural abundance, diversity and ecological integrity. Fire plays an important role in changes to vegetative cover, which in turn affects habitat and overall ecological health; therefore, effects on vegetation and bio-diversity are analyzed as an impact topic.

Cultural Resources. The National Historic Preservation Act, as amended in 1992 (16 USC 470 *et seq.*); the National Environmental Policy Act; and the NPS Cultural Resource Management Guideline (1994), and Management Policies (1988) require the consideration of impacts on cultural resources listed on or eligible for listing on the National Register of Historic Places. The undertakings described in this document are also subject to section 106 of the National Historic Preservation Act, under the terms of the 1995 Programmatic Agreement among the NPS, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers. Impacts to cultural resources (archeological, historic, and paleological) are therefore analyzed in this environmental assessment.

Aesthetics and Recreation. The mission of the NPS, as described by its Organic Act of 1916, defines the purpose of all parks is to "…conserve the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same…". Yukon-Charley Rivers National Preserve was established to "maintain the environmental integrity of the entire Charley River basin...in its undeveloped natural condition for public benefit and scientific study…". Scenic visual values, recreational activities, and general visitation within and around fire-treated areas may be temporarily impacted, thus visitor use will be considered as an impact topic.

Local Economy. The National Environmental Policy Act (NEPA) considers "impacts to the human environment" to include any effects of federal actions on the social and economic well being of communities and individuals. Impacts to the local economy are therefore analyzed in this environmental assessment.

Wetlands and Floodplains. NPS guidelines and policies require consideration of impacts on floodplains and wetlands (Executive Orders 11988 and 1190). Impacts to wetlands and floodplains are therefore analyzed in this environmental assessment.

Subsistence Use and Wildlife Habitat. Title VIII, Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA) states "In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands…the head of the federal agency…over such lands…shall evaluate the effect of such use, occupancy, or disposition on subsistence uses and needs…". Subsistence use may be temporarily impacted, thus subsistence use will be considered as an impact topic.

Air Quality. The federal 1963 Clean Air Act (42 U.S.C. 7401 *et seq.* as amended), stipulates that federal land managers have an affirmative responsibility to protect a park's air quality related values (including visibility, plants, animals, soils, water quality, cultural resources, and visitor health) from adverse air pollution impacts. The Preserve is designated as a federal "Class II" airshed. Air quality would be affected in the short-term during any type of ignition event; therefore, it is analyzed as a relevant impact topic.

Water Quality and Fisheries. National Park Service policies require protection of water resources consistent with the Clean Water Act. Increased erosion following a fire may affect water quality and is therefore considered a relevant impact topic.

D. Impact Topics Considered and Dismissed

Threatened and/or Endangered Species. The Endangered Species Act (1973) requires disclosure of impacts on all federally threatened or endangered species. NPS policy also requires analysis of effects on federal species, as well as state-listed threatened, endangered, candidate, rare, declining and sensitive species. There are no species of special concern within Yukon-Charley Rivers National Preserve, therefore this topic is not addressed further.

II. RANGE OF ALTERNATIVES

A. Introduction.

Each alternative consists of a different combination of the fire management strategies as mandated by NPS Director's Order 18, with each alternative representing a different application of fire as a management tool. Under each of the considered alternatives all unplanned human-caused ignitions would be suppressed in the safest, most cost effective, and least damaging manner possible. The considered alternatives differ in their respective approaches to the management of naturally caused ignitions and in their allowance or preclusion of prescribed fire.

B. Actions Common to all Alternatives.

Under each alternative, mechanical fuel reduction may be used to mitigate hazard fuel buildup or recreate historical landscape/conditions in areas where prescribed fire or wildland fire would pose an unreasonable threat to property or resources.

All fire management actions at Yukon-Charley Rivers National Preserve will be conducted in full compliance with local, state, and interstate air pollution control regulations as required by the Clean Air Act, 42 U.S.C. 7418. No local or interstate air pollution control regulations exist in Alaska.

The Preserve will employ three primary strategies in order to protect archeological, cultural, and historic sites from damage by fire or fire suppression activities: First, culturally significant structures will be assigned Critical or Full Protection status, as dictated by the Recommended Criteria for Fire Protection of Structural Resources Within YUCH. Second, personnel conducting detection and/or reconnaissance flights within the Preserve will be directed to remain alert for the presence of any undiscovered cultural sites or structures and to report their presence to the Preserve FMO. And third, designated Incident Commanders will consult with resource appropriate resource advisors regarding the identification and sensitivity of previously unknown sites and will cooperate with the Agency Advisor to mitigate any damage to such sites when possible.

Certain fire suppression activities could pose a threat to fragile soil layers and to other ecosystem components. This type of risk will be mitigated through the use of minimum impact suppression tactics, as specified by NPS policy.

C. Alternatives.

Alternative 1: Combination of Prescribed Fire Use and Wildland Fire Suppression:
Under this alternative the effects of natural wildland fire would be simulated through the use of planned ignitions conducted by park personnel in defined zones. Such fires would be ignited under predetermined fuel and weather conditions; control problems would thereby be minimal. Prescribed fires would be conducted in order to achieve specific management objectives. Under this alternative, all wildland fires would be suppressed.

Alternative 2: Combination of Wildland Fire Use and Wildland Fire Suppression:
Natural ignitions occurring in certain areas and under predetermined conditions would be managed for the accomplishment of resource management goals, including the preservation of fire in its natural role and the reduction of burnable vegetation. Unplanned human-caused fires would be aggressively suppressed, as would any fire posing a threat to life or property. Prescribed fires would not be implemented.

Alternative 3: Combination of Prescribed Fire Use, Wildland Fire Use, and Wildland Fire Suppression (Proposed Action):
All three of the major management actions described under DO-18 would be allowed, as determined by a combination of pre-established and incident-specific decision-making criteria. Naturally occurring wildland fires which do not pose a threat to life, property, or significant resources would be managed for the accomplishment of resource management goals, including the preservation of fire in its natural role and the reduction of burnable vegetation. Prescribed fire would be implemented, in certain cases, under the direction of National Park Service personnel for the purpose of reducing hazardous fuel loads or restoring historic landscapes and/or conditions. Suppression would continue in or near developed areas, near Preserve boundaries with administrative units having different fire management objectives, in areas known to contain sensitive cultural and/or archeological resources, or whenever insufficient resources are available to ensure the effective, long-term management of wildland fire to meet resource management objectives. This action would be a continuation of the fire management strategies as seen in the Preserve for the past 15 years.

D. Alternatives Considered but Rejected.
Full Wildland Fire Suppression:
All ignitions, including those of natural origin, would be suppressed and no prescribed fire would be implemented. Reduction of flammable vegetation would be accomplished strictly by mechanical means (e.g. through the use of chain saws or other tools). Mechanical reduction would be limited primarily to the protection of cultural and/or archeological sites and Preserve boundary areas. In some cases, however, mechanical reduction could be used to restore selected landscapes to historic conditions.

This alternative is rejected for the following reasons: the increased risk of catastrophic wildland fire which would result from the exclusion of the area's natural burn cycle and the prohibitively high cost of large-scale mechanical fuel reduction.

III. AFFECTED ENVIRONMENT

A. Introduction.
Yukon-Charley Rivers National Preserve encompasses 2.52 million acres, of which the federal government holds 84%. Much of the remaining land belongs to Doyon, Ltd., the regional native corporation; other ownership categories include Village Corporation tracts, Native allotments, and patented/unpatented mining claims. Located in the eastern interior of Alaska and bordering the Yukon Territory, Canada, the Preserve is bracketed by the small, road-connected communities of Eagle and Eagle Village to the east and Circle City, Central, and Circle Hot

Springs to the northwest. The large and historically significant Yukon River and nearly undisturbed Charley River provide access to the Preserve's roadless interior.

B. Natural Environment

The Yukon River valley is composed of low, rounded benches and ridges trending southwest to northeast. The valley region rises noticeably south of the Yukon River and gives way to the mountainous region of the Yukon-Tanana uplands. Elevations become progressively higher moving east from Circle, at 600 feet above sea level, to the U.S.-Canadian border, where mountains reach 6,000 feet. YUCH lies within a climatic region known as the interior basin. Mountains to the north and south tend to block moderating oceanic air masses, resulting in extremely low temperatures and low-level inversions in the winter and high temperatures and low precipitation in the summer

The Yukon-Charley region lies within a greater ecological zone known as the Taiga, or northern boreal forest, an area extending from the Alaskan interior east into Canada and dominated by spruce and several species of deciduous hardwoods. In the Preserve, as elsewhere in the Taiga, lowlands and drainages are often heavily forested. Uplands become more thinly forested with increasing elevation, with most areas above 2,000 feet consisting of treeless shrub tundra. Tundra dominated by tussock-forming sedges occurs at lower elevation sites where poor drainage precludes the presence of black spruce stands. Much of the preserve is underlain by permafrost as much as several hundred feet thick, with the top of the permafrost layer often lying as little as 2 or 3 feet below the surface at the peak of summer. Permafrost hinders subsurface drainage, causing unstable soil conditions on sloping surfaces; consequently when surfaces are disturbed and permafrost is allowed to melt, soils often collapse.

The Preserve is home to Dall sheep, moose, caribou, grizzly and black bear, wolves, and various small-mammal species; to eighteen species of fish; and to 159 species of birds, including twenty different species of raptor.

C. Cultural Environment

The history of the Yukon-Charley Rivers area includes occupations by Athabaskan peoples as well as by white participants in the turn-of-the-century gold rush. To date, over 160 structures have been located within the Preserve, consisting for the most part of cabins, roadhouses, check dams, caches, and diversion ditches.

D. Historical Role of Fire

Fire has been an inextricable component of the ecosystems of the Yukon-Charley area for thousands of years, with periodic fires having served throughout the centuries to select plants and animals that are adapted to fire-caused change. Black spruce is at least partially dependent upon stand-replacement fire, in that it's seeds become ready for germination at the peak of the Alaskan interior fire season and are released when its semi-serotinous cones are opened by canopy fire. Even more fundamentally, fire plays a key role in the regulation of the permafrost table throughout all the ecosystems of the Alaskan interior. Without fire, organic matter accumulates, the permafrost table rises, and ecosystem productivity declines. Vegetation communities become much less diverse, and wildlife habitat decreases. Fire rejuvenates these systems. It

removes some of the insulating organic matter and elicits a warming of the soil. Nutrients are added both as a result of combustion and by increased decomposition rates.

The impact of aggressive suppression on the Alaskan interior at large and the Yukon-Charley area in particular is difficult to assess. Organized suppression has occurred on a large scale in Alaska since 1939, the effects of this activity, however, are not yet clear. Alaskan fire management personnel feel that the fire ecology of the roadless portions of the Yukon-Charley area may be relatively unchanged from its condition prior to the arrival of whites and the subsequent development of organized suppression efforts.

E. Wildland Fire Management Situation

The seasonal fire cycle in the Alaskan interior consists of four "micro" seasons or phases, each varying with the changing weather patterns and the stages of vegetation development for the growing season.

The first begins in late April or early May with the loss of snow cover, and ends in late May or early June when greenup begins. During the transition from 100% winter-cured fuels to greenup, human-caused fires occur frequently; these fires are usually relatively easy to suppress. Spring fires that are not suppressed, however, often grow later in the season as fuels become dryer.

The second and third fire-cycle phases are primarily lightening driven. Suppression of such fires is harder. Fires occurring in June, the second period, usually do not develop the intensity of later summer fires; during hot, dry, and windy conditions, however, June wildland ignitions can result in extreme fire behavior.

The third period of fire activity begins in mid-July and runs through the first part of August. This is the period of maximum fire activity.

The final micro-season runs from late August into early September. These fires are generally easy to control except during particularly dry autumn weather.

IV. ENVIRONMENTAL CONSEQUENCES

A. Impacts of Alternatives

Alternative 1. Prescribed Fire Use and Wildland Fire Suppression

Vegetation and Bio-diversity: This alternative would have the greatest impact of a gradual loss of bio-diversity as the size and remoteness of the Preserve prohibit the implementation of prescribed fire on a scale sufficient to keep up with the natural accumulation of burnable vegetation. As such, management under the first alternative would eventually result in various disruptions of the area's natural components, including depth and thickness of permafrost layer and reduction of the bio-diversity of plant communities. The exclusion of routine, relatively low-intensity wildland fires would result in the periodic eruption of catastrophic fire events.

Cultural Resources: Under this alternative the short-term protection of registered and unregistered cultural resources would increase with the suppression of fires and the use of prescribed fire to reduce the vegetation accumulation surrounding these resources. The size and remoteness of the Preserve prohibit the implementation of prescribed fire on a scale sufficient to keep up with the natural accumulation of burnable vegetation. Therefore, long-term protection of these resources would diminish in that the exclusion of routine, relatively low-intensity fires would result in the periodic eruption of catastrophic fire events.

Aesthetics and Recreation: There would be a moderate impact under this alternative with occasional closures of specific areas due to fire suppression operations or prescribed fire operations to ensure the public's safety. There would also be a gradual degradation of sight lines and backcountry access as vegetation was not reduced because the size and remoteness of the Preserve prohibits the implementation of prescribed fire on a scale sufficient to keep up with the natural accumulation of burnable vegetation.

Local Economy: There would be a slight influx of revenue from occasional suppression operations. However, the exclusion of routine, relatively low-intensity wildland fires would result in the periodic eruption of catastrophic fire events causing a reduction of tourist activity thus resulting in a reduction of revenue.

Wetlands and Floodplains: Under this alternative there would be moderate impact due to the loss of bio-diversity in the fire-dependent tussock communities. Without fire, organic matter accumulates, the permafrost table rises, and ecosystem productivity declines. The size and remoteness of the Preserve prohibit the implementation of prescribed fire on a scale sufficient to keep up with the natural accumulation of burnable vegetation. Fire suppression operations may disrupt these communities through the construction of fireline.

Subsistence Use and Wildlife Habitat: This alternative would have a long-term effect on hunting, trapping, and gathering through the gradual deterioration of fire-dependent habitat communities. The exclusion of routine, relatively low-intensity wildland fires would result in various disruptions of the area's natural components, including depth and thickness of permafrost layers and productivity of wildlife habitat.

Air Quality: There would be short-term improvements through the elimination of fire use, which can allow fire to burn for many months. If detected quickly enough, new ignitions within the Yukon-Charley area can generally be suppressed before substantial growth; prescribed fires, in turn, could be executed under conditions favorable to the effective dispersion of smoke. But this alternative would result in a long-term degradation through increased occurrence of catastrophic fire due to the increase in accumulation of burnable vegetation.

Water Quality and Fisheries: The exclusion of routine, relatively low-intensity wildland fires would result in the periodic eruption of catastrophic fire events which may include greater erosion potential along streams and rivers. This may have short-term effects on fisheries in the clear water streams.

Alternative 2. Wildland Fire Use and Wildland Fire Suppression

Vegetation and Bio-diversity: There would be minimal impacts with the use of this alternative. Certain naturally ignited wildland fires would be managed for the accomplishment of resource management goals, including the preservation of fire in its natural role and the reduction of burnable vegetation. However, in the Critical and Full Protection Units the exclusion of prescribed fire may result in an unacceptable increase in vegetation thereby increasing the threat to the resources found within these units.

Cultural Resources: Under this alternative, the prohibition of prescribed fire could hamper both the protection of cultural and/or archeological resources and the restoration and/or protection of historic landscapes and conditions. Mechanical techniques employed in place of prescribed fire would tend to be more expensive and in some cases might not sufficiently mimic the effects of fire. However, certain wildland fires would be managed for the accomplishment of resource management goals including the reduction of burnable vegetation thereby better protecting the cultural resources from catastrophic fire.

Aesthetics and Recreation: Under this alternative the only impact would be the occasional closure of specific areas due to fire activity for the safety of visitors.

Local Economy: There would be a slight influx of revenue from occasional suppression operations with this alternative.

Wetlands and Floodplains: There would be a minimal risk of disruption to these communities due to fire suppression operations. There may be impacts due to erosion after fire has burned through the wetlands or floodplain.

Subsistence Use and Wildlife Habitat: There would be a short-term impact on game species and plants in specific areas due to the decrease of vegetation within the burned areas. However, this alternative would more adequately facilitate the long-term preservation of the area's natural processes by allowing fire to play its natural role in the ecosystem.

Air Quality: Under this alternative, smoke would be monitored for trajectory, mixing height, and impact to overall air quality. Certain naturally ignited wildland fires would be managed for the accomplishment of resource management goals, including the preservation of fire in its natural role and the reduction of burnable vegetation. This would reduce the possibility of catastrophic fire thereby reducing long-term, intense reduction of air quality.

Water Quality and Fisheries: Under this alternative certain naturally ignited wildland fires would be managed for the accomplishment of resource management goals including the preservation of fire in its natural role and the reduction of burnable vegetation. This would allow more low-intensity wildland fires that would reduce the erosion along streams.

Alternative 3. Prescribed Fire Use, Wildland Fire Use, and Wildland Fire Suppression (Proposed Action)

Vegetation and Bio-diversity: This alternative would have the least impact with the maximum potential for diversity through the careful implementation of prescribed fire in areas ill-suited to wildland fire use. Wildland fire posing a potential threat to life, property, or sensitive resources would be suppressed, while continued implementation of wildland fire use in remote portions of the Preserve would ensure the cost-effective preservation of the area's natural fire ecology as well as the reduction of potentially dangerous fuel loads.

Cultural Resources: Under this alternative there would be improved long-term protection of registered and unregistered cultural resources with the use of fire near and surrounding cultural resources. The occasional use of prescribed fire would allow a relatively cost-effective means of reducing fuel loads and preserving historic landscapes and conditions where the presence of values to be protected prohibits the implementation of wildland fire use.

Aesthetics and Recreation: The impacts would be similar to Alternative 2 with the addition of the occasional use of prescribed fire that would allow a relatively cost-effective means of reducing fuel loads where the presence of values to be protected prohibits the implementation of wildland fire use.

Local Economy: The impacts would be similar to Alternative 2 with the addition of the occasional use of prescribed fire that would allow a relatively cost-effective means of reducing fuel loads where the presence of values to be protected prohibits the implementation of wildland fire use.

Wetlands and Floodplains: The impacts would be similar to Alternative 2 with the addition of the occasional use of prescribed fire that would allow a relatively cost-effective means of reducing fuel loads where the presence of values to be protected prohibits the implementation of wildland fire use.

Subsistence Use and Wildlife Habitat: The impacts would be similar to Alternative 2 with the addition of the occasional use of prescribed fire that would allow a relatively cost-effective means of reducing fuel loads where the presence of values to be protected prohibits the implementation of wildland fire use.

Air Quality: The impacts would be similar to Alternative 2 with the addition of the occasional use of prescribed fire that would allow a relatively cost-effective means of reducing fuel loads where the presence of values to be protected prohibits the implementation of wildland fire use.

Water Quality and Fisheries: The impacts would be similar to Alternative 2 with the addition of the occasional use of prescribed fire that would allow a relatively cost-effective means of reducing fuel loads where the presence of values to be protected prohibits the implementation of wildland fire use.

B. Cumulative Impacts

The Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act, requires assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined by CEQ as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). The on-going and future activity that would have a cumulative effect on resources of concern within and outside of the Preserve's boundaries analyzed in this Environmental Assessment is the adjacent landowners' fire management plans. All public land management agencies in Alaska are signatories of the Alaska Interagency Fire Management Plan, which allows for fire to burn on the landscape in limited suppression units. Much of the public lands surrounding the Preserve is in a limited suppression unit and may result in multiple large fires. The results of these multiple fires may be greater than fires managed just within the Preserve boundary. These impacts are mitigated by the convening of a Multi-Agency Coordinating (MAC) group. As directed in the Alaska Interagency Fire Management Plan, "A statewide Multi-Agency Coordinating (MAC) group may be convened to implement a temporary change from the selected management options for a specific geographic area(s) during periods of unusual fire conditions (e.g., numerous fires, predicted drying trends, smoke problems, unusually wet conditions or suppression resource shortages)."

C. IMPACTS OF ALTERNATIVES SUMMARY

	Alternative 1: Prescribed Fire and Wildland Fire Suppression	**Alternative 2: Wildland Fire Use and Wildland Fire Suppression**	**Alternative 3 (Proposed): Prescribed Fire Use, Wildland Fire Use, and Wildland Fire Suppression**
Vegetation and Bio-diversity	Greatest impact: gradual loss of bio-diversity through accumulation of organic matter, encroachment of species, etc.	Minimal impact: continued potential for minimal loss of diversity through fire exclusion in or near Critical and Full Protection Units and sites.	Least impact: maximum potential for diversity through careful implementation of prescribed fire in areas ill-suited to wildland fire use.
Cultural Resources	Improved short-term protection of registered and unregistered cultural and/or archeological sites.	Minimal impact.	Improved long-term protection of registered and unregistered cultural and/or archeological sites; improved maintenance of historical landscapes and conditions.
Aesthetics and Recreation	Moderate impact: occasional closures of specific areas and gradual degradation of sight lines, backcountry access, etc.	Minimal impact: occasional closures of specific areas; vegetation burned may decrease aesthetics.	Minimal impact: occasional closures of specific areas; vegetation burned may decrease aesthetics.
Local Economy	Slight influx of revenue from occasional suppression operations; greater potential for long-term disruption of tourist activity from catastrophic fire.	Minimal impact	Minimal impact
Wetlands and Floodplains	Moderate impact: loss of bio-diversity in fire-dependent tussock communities; risk of disruption by suppression activity.	Minimal impact: may be some erosion until vegetation returns.	Minimal impact; may be some erosion until vegetation returns.
Subsistence Use and Wildlife Habitat	Long-term degradation of hunting through gradual deterioration of fire-dependent habitat communities.	No long-term impact; some potential for short-term displacement of game from specific areas.	No long-term impact; some potential for short-term displacement of game from specific areas.
Water Quality and Fisheries	Increased erosion potential due to catastrophic fire	No long-term impact; some short-term erosion.	No long-term impact; some short-term erosion.
Air Quality	Short-term improvements through elimination of fire use; long-term degradation through increased occurrence of catastrophic fire.	No impact.	Minimal impact.

V. COORDINATION AND CONSULTATION

Brad Cella, Fire Management Officer, Alaska Region, National Park Service
Marsha Lutz, Area Fire Management Officer, Wrangell-St. Elias National Park and Preserve

LITERATURE CITED

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PREPARER

Chuck Sheaffer, Biological Technician, Wrangell-St. Elias National Park and Preserve

APPENDIX:

ANILCA Title VIII Section 810 (a) Summary Evaluation and Findings

I. INTRODUCTION

This section was prepared to comply with Title VIII, Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA). It summarizes the evaluations of potential restrictions to subsistence activities which could result from the implementation of the proposed fire management plan and the actions described therein.

II. EVALUATION PROCESS

Section 810(a) of ANILCA states:

> "In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands…the head of the federal agency…over such lands…shall evaluate the effect of such use, occupancy, or disposition on subsistence uses and needs, the availability of other lands for the purposes sought to be achieved, and other alternatives which would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes. No such withdrawal, reservation, lease, permit, or other use, occupancy or disposition of such lands which would significantly restrict subsistence uses shall be effected until the head of such Federal agency—
>
> (1) gives notice to the appropriate State agency and the appropriate local committees and regional councils established pursuant to section 805;
>
> (2) gives notice of, and holds, a hearing in the vicinity of the area involved; and
>
> (3) Determines the (A) such a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands, (B) the proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other disposition, and (C) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions."

ANILCA created new units and additions to existing units of the national park system in Alaska. Yukon-Charley National Preserve was created by ANILCA Section 201[10] in order to "maintain the environmental integrity of the entire Charley River basin…in its undeveloped natural condition for public benefit and scientific study; to protect habitat for, and populations of, fish and wildlife, including but not limited to the peregrine falcons and other raptorial birds, caribou, moose, Dall sheep, grizzly bears and wolves; and in a manner consistent with the foregoing, to protect and interpret historical sites and events associated with the gold rush on the

Yukon River and the geological and paleontological history and cultural prehistory of the area…"

The act also states that "Subsistence uses by local residents shall be permitted in the park where such uses are traditional, in accordance with the provisions of title VIII."

The potential for significant restriction must be evaluated for the proposes action's effect upon "…subsistence uses and needs, the availability of other lands for the purposes sought to be achieved and other alternatives which would reduce or eliminate them.

III. PROPOSED ACTION ON FEDERAL LANDS

The National Park Service specifies that every administrative unit with burnable vegetation develop a fire management plan—a unit-specific document outlining fire management goals and describing the policies and actions by which these goals will be realized (Director's Order 18). Since 1983, the Preserve's fire management program has operated under the auspices of various state-wide interagency documents, including most recently the **Alaska Interagency Wildland Fire Management Plan**, or **AIWFMP** (1998). Under the AIWFMP, fire protection needs at Yukon-Charley are determined by NPS and BLM managers; lands within the Preserve are then placed within **critical**, **full**, **modified**, or **limited** protection categories, depending on the proximity of values to be protected and on overall resource management objectives.

The proposed action entails the establishment of a Fire Management Plan for Yukon-Charley Rivers National Preserve. Both the preferred alternative and the other considered alternatives allow for continued adherence to the AIWFMP while at the same time bringing the Preserve's fire management program into compliance with recently developed National Park Service directives. Specifically, NPS Director's Order 18 mandates a distinction between **prescribed fire** (planned and implemented by management) and **wildland fire** (unplanned, whether naturally ignited or human-caused), with wildland fire incidents further categorized, in turn, as either wildland **fire use** or wildland fire **suppression**. Each of the considered alternatives mandates a specific configuration of DO-18 management options and relates these options to the policies and procedures outlined in the AIWFMP.

The preferred alternative calls for the continued management of wildland fire at Yukon-Charley Rivers National Preserve through a combination of wildland fire suppression, wildland fire use, and prescribed fire use. This statement of Summary Evaluations and Findings addresses the impact of these fire management policies and actions on subsistence activities within the Preserve.

(See the Fire Management Plan and the accompanying Environmental Assessment for further discussion of fire management policies and actions.)

IV. AFFECTED ENVIRONMENT

As mandated by ANILCA section 1313, the entirety of Yukon-Charley Rivers National Preserve will be managed so as to allow for subsistence trapping as well as hunting and fishing for either sport or subsistence under applicable sate and federal regulations. The area of concentrated subsistence use within the Preserve extends along the Yukon River as well as lower stretches of the Charley, Kandik and Nation Rivers. Along the Yukon, residents of Central (population 52), Circle City (population 73), Eagle (population 168) and Eagle Village (population 35) engage in subsistence activities during a five-month ice-free period. As many as fifteen individuals reside along rivers within the Preserve; subsistence use by these individuals tends to be restricted to their immediate environs.

Caribou, moose, salmon, black bear, marten, and lynx are the most important species for subsistence users in and around the Preserve. These species are supplemented by waterfowl, snowshoe hares, grouse, ptarmigan, wolves, beaver, and various species of resident fish. In addition to fish and game species, bark, firewood, berries and other plant materials are harvested. Subsistence hunting activities are concentrated in the spring and fall months, fishing and plant gathering in summer and fall, and trapping in mid-winter. Subsistence harvests vary considerably each year because of weather, migration patterns, and population cycles.

The majority of subsistence use occurring at Yukon-Charley takes place within the Preserve's Limited Protection fire management unit, with most of the remaining subsistence use occurring in the Preserve's Modified Protection fire management unit. Under the proposed action, certain natural ignitions occurring within these areas would be managed for the accomplishment of resource management goals, including the preservation of fire within its natural role and the perpetuation, in turn, of healthy and biologically diverse plant communities and fish and game habitat.

V. SUBSISTENCE USES AND NEEDS EVALUATION

To determine the potential impact on existing subsistence activities, three evaluation criteria were analyzed relative to existing subsistence resources that could be impacted.

The evaluation criteria are:

- the potential to reduce important subsistence fish and wildlife populations by (a) reductions in numbers; (b) redistribution of subsistence resources; or (c) habitat losses;

- what effect the action might have on subsistence fisherman or hunter access;

- the potential for the action to increase fisherman or hunter competition for subsistence resources.

1) The potential to reduce populations:

The National Park Service has generally found populations of plants and animals important to subsistence activities to be healthy. Because site-specific information on population, distribution, and harvest is lacking for many of these species, is lacking, however, recognition of declining populations has been difficult.

The Preserve's Resource Management Plan (1995) identifies several potential threats to the continuation of traditional and customary subsistence lifestyles, including, specifically, any activity that impairs the overall health of the ecosystem through the disruption of the natural fire regime.

The actions which would be implemented under the preferred alternative would be aimed directly at the safe and cost-effective preservation of the area's indigenous fire ecology. As such, the Preserve's enactment of the preferred alternative would have a beneficial effect on the long-term viability of plant and animal populations pertinent to subsistence use within the Preserve. The occasional displacement of plant and animal populations from specific locales by wildland fire is a natural and inevitable occurrence within the fire-dependent ecosystems of the Yukon-Charley area. Under the proposed action, however, potential losses to subsistence users could be mitigated through consideration of hunting and trapping activities by land managers in the planning and implementation of wildland fire use and prescribed fire use incidents.

2) Restriction of Access:

Occasional restriction of access to local areas by subsistence users because of fire behavior and/or fire management practices is inevitable. Under the proposed action, such restrictions would be minimized in the long run through the reduced possibility of widespread, catastrophic fire.

3) Increase in Competition:

The enactment of the preferred alternative would not significantly increase competition for the use of subsistence resources. Displacement of plant and animal populations from specific sites would be short-term, and in fact in most cases the long-term viability of the populations in question depends directly on the natural processes which the proposed plan would be intended to safely perpetuate.

VI. AVAILABILITY OF OTHER LANDS

As stated earlier, wildland fire is an inevitable component of the plant and animal communities of the Yukon-Charley area. Consequently, the availability of other lands is not a pertinent consideration in this particular case.

With respect to the question of subsistence use, the scope and intensity of wildland fire incidents managed for resource benefit (i.e., fire use incidents) will generally be of small significance when considered within the context of overall available acreage. Prescribed fires will be planned and managed so as to avoid any significant hardship to subsistence users.

VII. ALTERNATIVES CONSIDERED

This section discusses the considered alternatives with respect to their respective reduction or elimination of the need to use public lands necessary for subsistence purposes.

Alternative one (combination of prescribed fire use and wildland fire suppression) would perhaps result in the least short-term disruption of subsistence activities, with suppression responses preventing the spread of many wildland fire ignitions. The long-term impacts of this alternative, however, would be negative, with the exclusion of wildland fire leading to the gradual decline of bio-diversity and viable habitat throughout all areas within the Preserve utilized by subsistence hunters and trappers.

Alternative two (combination of wildland fire use and wildland fire suppression) would not significantly differ from the preferred alternative with respect to the reduction or elimination of the need to use public lands for the accomplishment of fire management goals.

The preferred alternative would yield the same favorable long-term effects on lands used for subsistence activities as alternative two, while allowing more effective protection and restoration of significant fire-sensitive sites and/or landscapes.

VIII. FINDINGS

This analysis concludes that the proposed action will not result in a significant restriction of subsistence uses.

Preparedness Inventory

EQUIPMENT	YUCH HAVE
Sprinkler Kit:	
fuel line adapter	0
nylon cord 100'	2 lengths
garden hose 50'	3 lengths
reducer 1'-3/4"	3
sprinkler head	3
gas tank 5 gal.	
1" gated wye	2
3/4" shutoff valve	0
3/4" wye	3
Shindaiwa kits:	
burlap bag	4
1 gal. Premix	
1" hose 100'	13 lengths
1" suction line 10' w/strainer	0
collapsible pail	0
shindaiwa pump	0
bung wrench	0
3/4" drum faucet valve	0
Accessory bag:	
nylon cord 100'	2 lengths
earplugs	lots
1" plastic nozzle	24
spark plug	0
combo screwdriver 4 in 1	0
6" adjustable wrench	0
4 mm allen wrench	0
1" to 1 1/2" spanner wrench	2
spark plug wrench	0
Mark III pump kit:	
nylon cord 100'	2 lengths
Mark III pump	1
1 1/2" suction line 10'	0
fuel absorbent pads 2'X2'	0
gas tank 5 gal.	
3/4" drum faucet valve	0
bung wrench	0
Accessory Bag:	
burlap bag	2
nylon cord 100'	2 lengths
1 1/2" double female	2
1 1/2" double male	1
earplugs	lots
fuel line assembly, 1/4"x5'	?
goggles	4
1 1/2" inline tee	0
1 1/2" plastic nozzle	4
1" twin tip combo nozzle	2
collapsible pail	0
hand primer	2
1 1/2" to 1" reducer	27
starter rope assembly	0
1 1/2" gated wye	15
1 1/2" foot valve w/strainer	0
Pump tool roll:	
case	0
grease gun	0
sliding T handle 1/2" drive	0
6" slip joint pliers	0

spark plug	0
6" adjustable wrench	0
10mm offset open end box wrench	0
13mm open end box combo wrench	0
13/16" deep 1/2" drive socket wrench	0
1" to 1 1/2" spanner wrench	2
Chainsaw kits:	
chainsaw	2
chaps	
fuel premix 1 gal.	
funnel w/strainer 1 qt.	
bar oil 1 qt.	
felling wedge	
Chainsaw tool accessory kit:	
chain	
earplugs	lots
round file	
goggles	
file guide w/handle	
spark plug	
screwdriver, combo 4 in 1	
sparkplug wrench	
Misc. Cache Supplies:	
yellow sleeping bags	5
IA packs	10
red bags	10
hardhats	9
shovels	16
pulaskis	8
cubitainers	15
tarp	4
flagging	1 roll
fiber tape	2 rolls
water bottles	0
goggles	1
1st aid kits	0
driptorches	9
MREs	8 cases
head nets	6
bug spray	1 box
flat files	1 box
headlamps	10
leather gloves	lots
nomex shirts	20
nomex pants	20
space blankets	0
belt weather kits	4
fireshelters	11
fussees	5.5 cases
radio harness	0
Fedco	9

To: AFS Staff

From: Manager, AFS

Subject: Evacuation procedures policy

In the course of fire management / suppression activities circumstances may exist where evacuation of personnel or the general public becomes necessary. These evacuations usually fall into one of two categories; the first is caused by imminent danger of wildland fire burnover, the second due to potential health risks caused by increased smoke and particulate matter in the atmosphere.

It will be AFS policy to handle each of these situations in the manner described below.

Evacuations for imminent Wildland Fire Burnover

When a wildland fire being suppressed by AFS personnel has the potential to burn into an inhabited area or structures making it unsafe for residents to remain, AFS will request a technical specialist from ADES to assist in the development of an emergency evacuation plan. This request will be processed through normal resource ordering channels.

The ADES technical specialist will be responsible for developing and implementing evacuation procedures. It will be the responsibility of the suppression manager or I.C. to initiate the evacuation procedure when required.

Evacuations for health risks due to smoke

If AFS assistance is requested by the public to evacuate an area due to the potential respiratory health and safety risks caused by smoke from a wildland fire, AFS personnel should take the following actions:

a) Advise the person requesting to contact their local Village Public Safety Officer and/or Health service provider and notify them of their concern.

b) That official should then contact the Alaska Division of Emergency Services (ADES) in Anchorage at (907) 428-7000 and request assistance.

c) Take down all the pertinent information and give ADES a courtesy call to inform them of the actions taken.

It will be the responsibility of the ADES official in charge to initiate any evacuation procedure under these circumstances.

Interagency Contacts

Alaska Interagency Coordination Center:

Center Manager	Dave Curry	356-5677
Initial Attack Coordinator	Bob Dickerson	356-5670

Upper Yukon Fire Management Zone:

Fire Management Officer	Mike Silva	356-5616
Assistant FMO	Skip Thiesen	356-5558
Fuels Management Spec.	Kato Howard	356-5561
Upper Yukon-Tanana Zone Dispatch	Corey Doolin	356-5555

Descriptions of FMU Boundaries

Full

The southeast portion comprises all of the Preserve's holdings to the south and west of the Yukon River within Range 32 East, Township 1 North. This area is contained on one side by the portion of the Yukon running from the south edge of Calico Bluff to approximately one mile upstream from the mouth of the Seventymile River and on the other side by the right angle formed by the lines running west and south from these respective points.

Modified

The perimeter of the northwest portion of the Modified Protection FMU runs west from the intersection of the Preserve boundary and the divide separating Little Black and Paddle Creek drainages, along this divide and over Point 2245, then down and across a tributary of Paddle Creek and along the Paddle Creek/Yukon River Divide to the Preserve Boundary at the northern edge of Township 9 North, Range 18 East. From here the perimeter runs due east along the Preserve's far northern boundary to where the boundary doglegs south, then continues south along the boundary back to the Little Black/Paddle Creek drainage.

The perimeter of the southeast portion of the Modified FMU runs north from the Preserve's extreme southeast corner along the Preserve's eastern boundary to the divide separating Hard Luck Creek and the Tatonduk River drainages, near Squaw Mountain. From here the perimeter runs west to the origin of the unnamed creek immediately west of Point 3705, then down this creek to its confluence with the Yukon. At the Yukon River, the FMU perimeter *excludes* the two eastern most of the three islands at the mouth of the Tatonduk, but follows the opposite (west) shore of the Yukon downstream to the small drainage opposite the river from Montauk Point. The perimeter follows this drainage and continues up to Point 3348, then runs down the ridge running SSW. From where this ridge intersects with the Preserve boundary the FMU perimeter follows the boundary east until it intersects again with the Yukon River.

Limited

The Limited Protection FMU includes all YUCH holdings not contained within the Full or Modified FMUs.

FIRE SITUATION

Fire Name	
Fire Number	
Jurisidiction(s)	
Administrative Unit(s)	
FMP Unit(s)	
Geographic Area	
Management Code	
Start Date/Time	
Discovery Date/Time	
Current Date/Time	
Current Size	

Location: Legal Description(s)	**T.**	**R.**	**Sec.**	**Sub.**
Latitude				
Longitude				
UTM:				
County:				
Local Description				
Cause				
Location: Legal Description(s)	**T.**	**R.**	**Sec.**	**Sub.**
Latitude				
Longitude				
UTM:				
County:				
Local Description				
Cause				

Fuel Model/ Conditions	
Weather:	
Current	
Predicted	
Fire Behavior:	
Current	
Predicted	
Availability of Resources	

DECISION CRITERIA RECORD:

Fire Number: Fire Name:

Land Manager/Owner: Fire Management Option:

Adjoining Land Manager/Owner(s): Adjacent Fire Management Option(s):

Current Fire Size: Location (Legal Description):

Map Quad/Meridian: Lat/Long (if available):

Decision Criteria

Public Safety at Risk	Yes	No
Firefighter Safety at Risk	Yes	No
Threatening Private Property	Yes	No
Improvements at Risk	Yes	No
Threat to Natural/Cultural Resources	Yes	No
Initial Attack Resources Available	Yes	No
Unacceptable Factor(s) to Land Manager/Owner(s)	Yes	No
Other Unacceptable Factors	Yes	No

Weather

Current:

Past:

Predicted:

Fire Behavior

Current:

Past:

Predicted:

Resistance to Control/Extinguish:

DECISION CRITERIA RECORD (CON'T)

Topography/Natural Barriers:

Fuels:

Other Contributing Factors (fire Danger Ratings, Greenness, etc.):

Fire Representative Summary Statement:

Objectives:

Strategy:

Estimate Duration of Actions:

Signature:_____ Date:_____
Fire Representative

Land Manager Summary Statement and Authorization

Objectives:

Constraints:

Authorization:_____ Date:_____
Land Manager/Owner(s) Representative

Everglades National Park
And
Fort Jefferson National Monument
Homestead, Florida

Delegation of Authority

As of 1800, May 20, 1989, I have delegated authority to manage the Ingraham fire, number 8930, Everglades National Park, to Incident Commander, Rex Mann and his Incident Management Team.

The fire, which originated as four separate lightening strikes occurring on May 17, 1989, is burning in legislated wilderness. My considerations for management of this fire are:

1. Provide for firefighter safety.
2. I would like the fire managed in such a manner that suppression actions will cause as little environmental damage as possible.
3. Key cultural features requiring priority protection are: Mahogony Hammock, overlook board walks, park headquarters, the Pinelands campground and residential area, Royal Palm Visitor Center, and hydrostations with recording equipment.
4. Key resource considerations are: protecting endangered species by providing aircraft telemetry monitoring of Florida Panther, preserving as much Cape Sable Sparrow habitat as possible, and avoiding wildlife entrapment situations.
5. Restrictions for suppression actions are no tracked or wheeled vehicles in the wilderness except where roads exists and are identified for use, and no retardant will be utilized.
6. Minimum tools for use are Type II/III helicopters, chainsaw and weed whips.
7. My agency advisor will be park Fire Management Officer, Sue Husari.
8. The NE flank of the fire borders Florida Department of Forestry (DOF) protection. Chekika State Park must be protected if threatened. John Flowers will be the DOF representative.
9. Managing the fire cost-effectively for the values at risk is a significant concern.
10. Providing training opportunities for the South Florida parks personnel is requested to strengthen our organizational capabilities.
11. Minimum disruption of visitor access of the main park road consistent with public safety.

Michael V. Finley
Superintendent, Everglades National Park
May 20, 1989

Everglades National Park
And
Fort Jefferson National Monument
Homestead, Florida

Amendment to Delegation of Authority

The Delegation of Authority dated May 20, 1989, issued to Incident Commander, Rex Mann for the management of the Ingraham fire, number 8930 is hereby amended as follows. This will be effective 1800, May 22, 1989.

3. Key cultural features requiring priority protection are: Mahogony Hammock, overlook board walks, park headquarters, the Pinelands campground and residential area, Royal Palm Visitor Center, hydrostations with recording equipment, Shark Valley, Hammock 55, and Binky Hammock Chain.

5. Minimum tools for use are medium and light chainsaws, and weed whip.

12. Use of tracked vehicles authorized to protect the Miccosukee Strip.

Michael V. Finley
Superintendent, Everglades National Park

Everglades National Park
And
Fort Jefferson National Monument
Homestead, Florida

Wildland Fire Implementation Plan

Table of Contents

Fire Name	
E. Fire Number	
F. Administrative Unit(s)	

SHORT-TERM IMPLEMENTATION ACTION

Attach Stage I information.

Action Items	*Information specific to this fire*
Objectives and Desired Effects	
Safety Considerations	
External Concerns	
Threats	

Short-Term Actions (describe)	

Estimated Costs	
Signature	
Title/date	

Stage III: Long-Term Implementation Actions

Attach Stage I and Stage II information. Update and/or revise Stage I and II as necessary.

Objectives and Risk Assessment Considerations

Natural and Cultural Resource Objectives and Constraints/ Considerations	

Maximum Manageable Area (MMA)

Acres in MMA:	
Attach Map of MMA	

Fire Projections, Weather, and Map

Projected Fire Area Under *Expected* Weather Conditions	
Projected Fire Area Under Experienced *Severe* Weather Conditions	

Weather Season/Drought: Discussion and Prognosis

Long-Term Risk Assessment and Map (if applicable)

Risk Assessment (Describe techniques utilized and outputs, include maps as appropriate)	

Probability of Success

Describe Probability of Success	

Threats

Threats to MMA	

Smoke Dispersion and Effects	
Other	

Monitoring Actions

Describe Monitoring Actions, Frequency, Duration

Mitigation Actions

Describe Holding Actions and Other Mitigation Actions, and Management Action Points that initiate these actions, and Key to Map if necessary

Resources Needed to Manage the Fire Under Expected Weather Conditions

Describe resources necessary to accomplish ignition, holding, other mitigation actions, and monitoring actions	

Estimated Costs of Managing the Fire(s)

Describe costs in terms of resources needed, projected duration, etc.	

Contingency Actions

Describe Contingency actions, management action points that initiate them, resources needed, etc.

Information Plan

Describe Information Plan, Contacts, Responsibilities, etc.

Post-burn Evaluation

Describe post-burn evaluation procedures, resource requirements, costs, duration, etc.

Signatures

Include signatures/titles/ dates for preparing, approving, and any concurring individuals
